

TC-153SD

US Model
AEP Model
UK Model



PORTABLE STEREO CASSETTE-CORDER

SPECIFICATIONS

Power Requirements:	120V AC, 60 Hz (USA) 220V AC, 50/60 Hz (AEP) 240V 50 Hz (UK) DC 6 V, four size "D" flashlight batteries or SONY rechargeable battery pack BP-8 or SONY car battery cord DCC-128	Inputs: MICROPHONE (two) Impedance: for low impedance microphone Normal Level: -60 dB (0.77 mV) LINE IN (two) Impedance: 100 kΩ or more Normal Level: -10 dB (0.25 V) REC/PB Connector (AEP, UK) Impedance: less than 10 kΩ
Power Consumption:	12W AC	Outputs: LINE OUT (two) Impedance: 10 kΩ or more Normal Level: 0 dB (0.775 V) with 100 kΩ load HEADPHONE Impedance: 8 Ω REC/PB Connector (AEP, UK) Impedance: less than 10 kΩ
Track System:	Four-track two-channel stereo	Semiconductors: 44 transistors, 2 IC's and 35 diodes
Tape Speed:	4.8 cm/s (1 7/8 ips)	Motor: D-009F
Frequency Response:	DOLBY NR OFF • With ferri-chrome cassette and chromium dioxide cassette: 30~15,000 Hz (NAB) 40~12,500 Hz (DIN) • With standard cassette 30~13,000 Hz (NAB) 40~11,000 Hz (DIN)	Speaker: 100 mm (4 inch) dia, 8 Ω
Signal-to-Noise Ratio:	DOLBY NR OFF • With ferri-chrome cassette and chromium dioxide cassette: 55 dB (at peak level, PB equalization 70 μs) • With standard cassette: 53 dB (at peak level, PB equalization 120 μs) DOLBY NR ON improved 5 dB at 1 kHz improved 10 dB at 5 kHz and above	Record/Playback Head: PF145-3602A (F&F) Erase Head: EF135-36 Dimensions: 378(w) x 108(h) x 238 (d) mm Weight: 14 7/8 (w) x 4 1/4 (h) x 9 3/8 (d) inches 5.4 kg, 11 lb 15 oz with batteries
Wow and Flutter:	0.15% WRMS (NAB) ± 0.3% (DIN)	
Record Bias Frequency:	Approximately 105 kHz	
Power Output: (at 10% Distortion)	1.5W (AC operation) 0.8W (DC operation)	

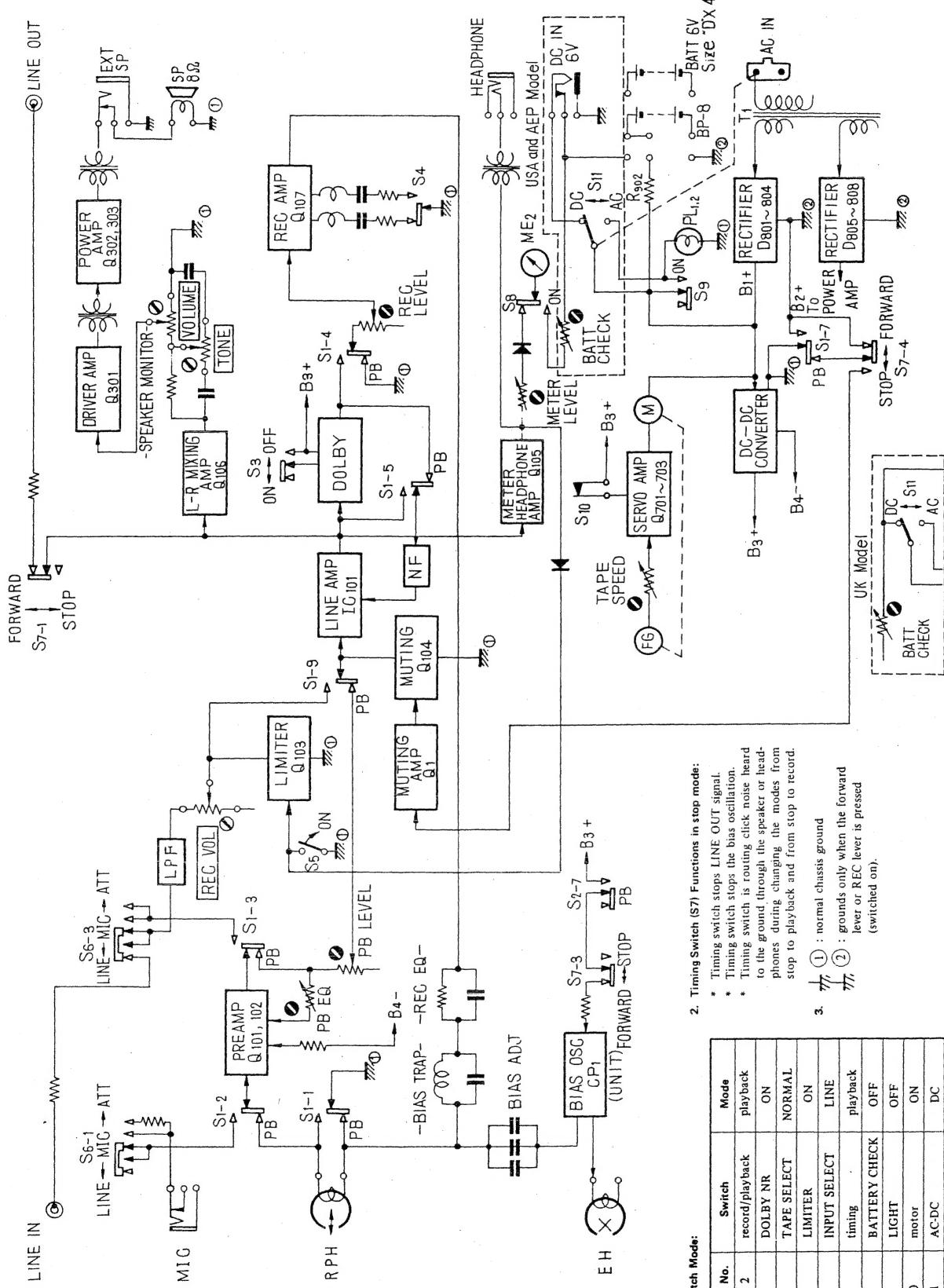
* The word Dolby is the trademark of
Dolby Laboratories, Inc.

SONY
SERVICE MANUAL

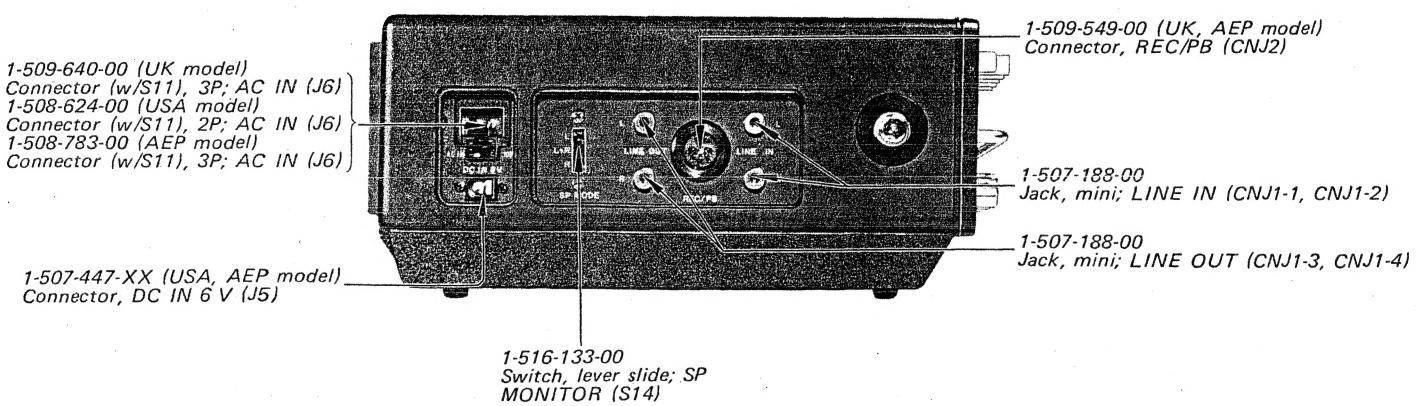
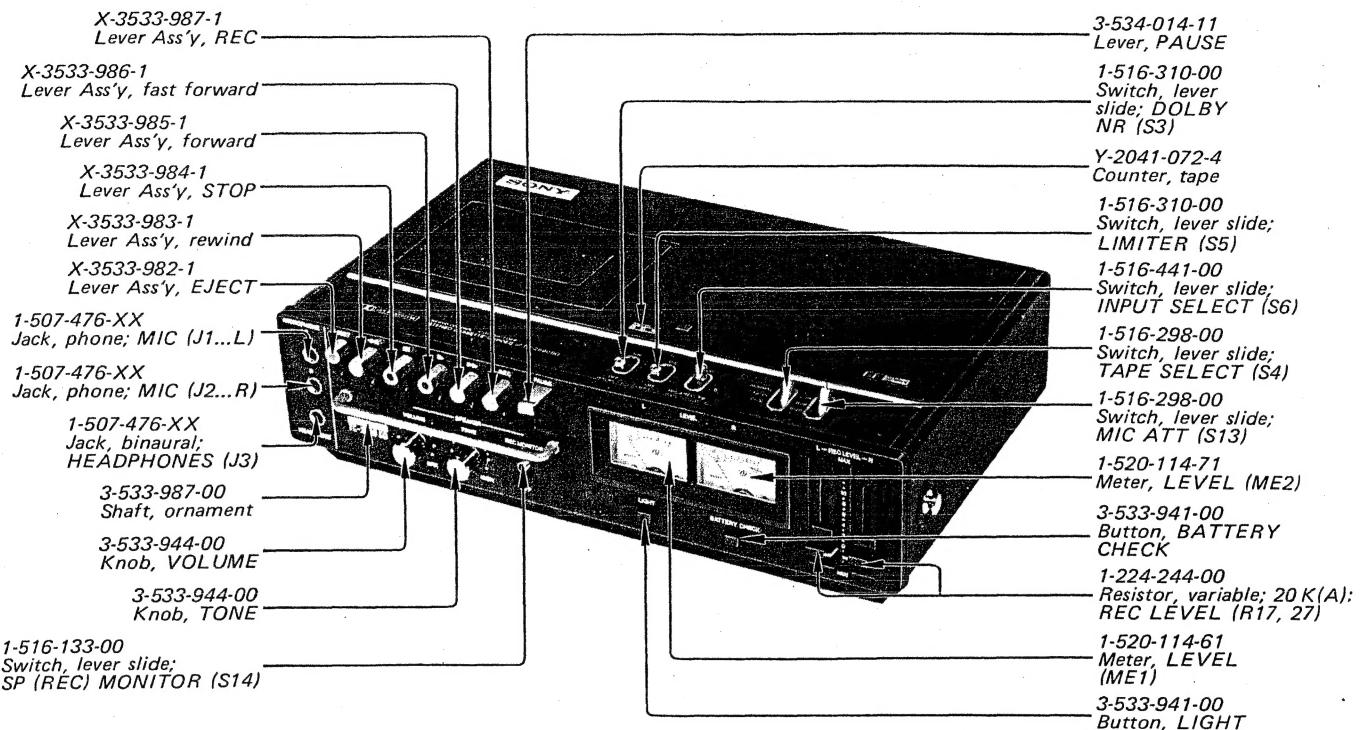
SECTION 1

OUTLINE

1-1. BLOCK DIAGRAM



1-2. EXTERNAL VIEWS



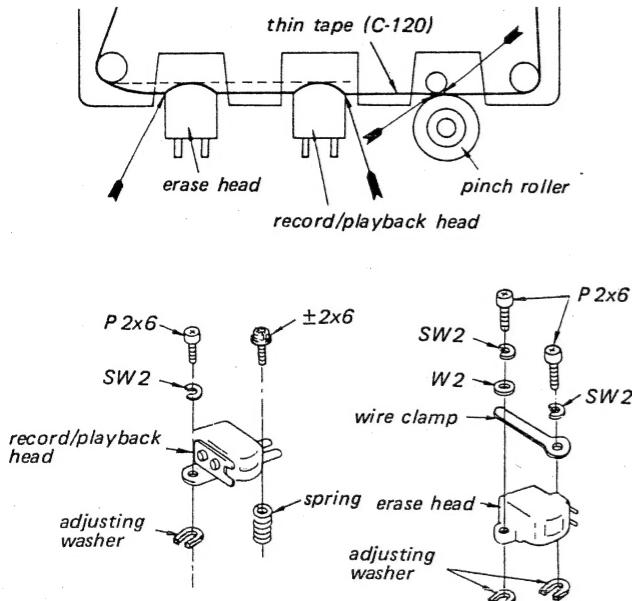
SECTION 3 ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

Head Height Adjustment

— playback mode —

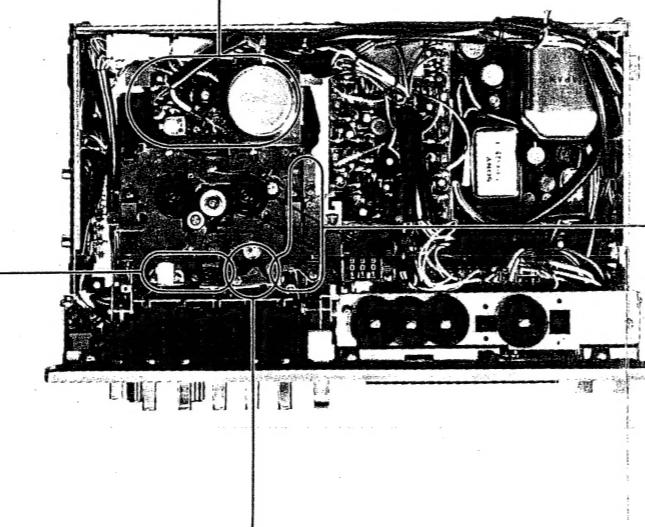
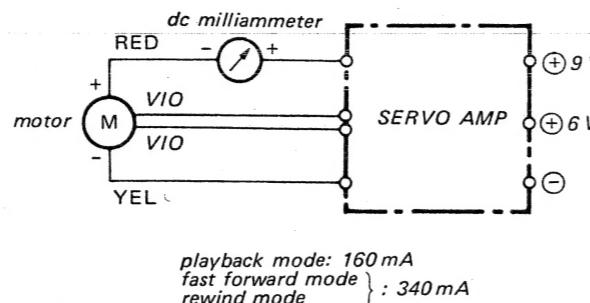
Adjust by removing or adding the adjusting washer so that the tape is moved straightly without curl at positions shown by the arrows.



Part. No.	Description
3-513-237-01	adjusting washer ($t=0.1$)
3-513-237-11	adjusting washer ($t=0.2$)

Motor Current Measurements

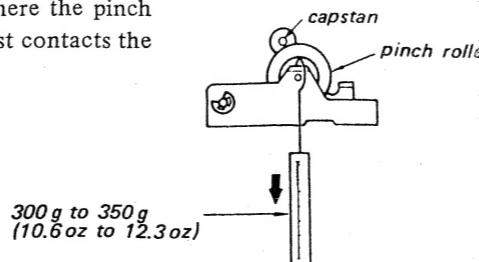
With C-90 tape end, measure current as shown.



Pinch Roller Pressure Measurement

— playback mode —

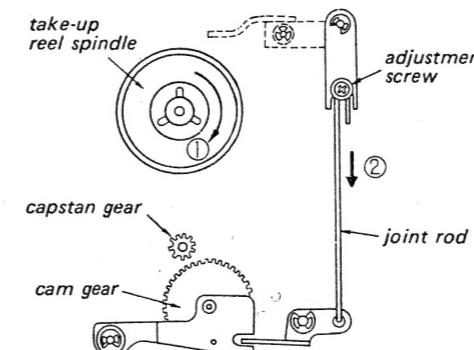
With the unit in the playback mode, pull pinch roller away from the capstan using a spring scale, as shown in the figure. Return the pinch roller slowly. The pressure (spring scale tension) should be measured at the point where the pinch roller just contacts the capstan.



Automatic Shut-off Adjustment

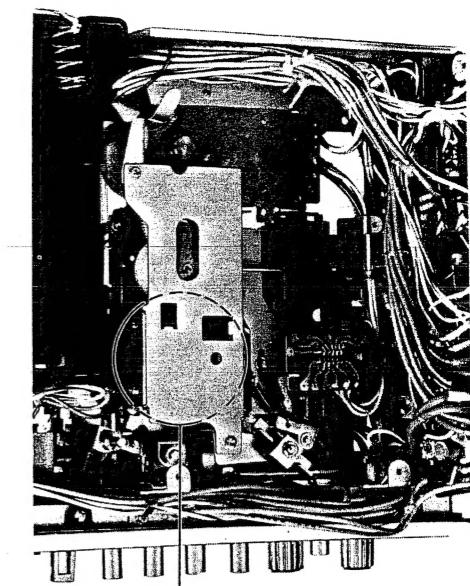
In the playback or the record mode and with POWER switch OFF, turn the take-up reel spindle in the direction shown by the arrow

- ① until the joint rod moves to the full in the direction shown by the arrow ②.
- At this time, the cam gear and the capstan gear should completely mesh.
- If necessary, adjust the joint rod length by the adjustment screw.

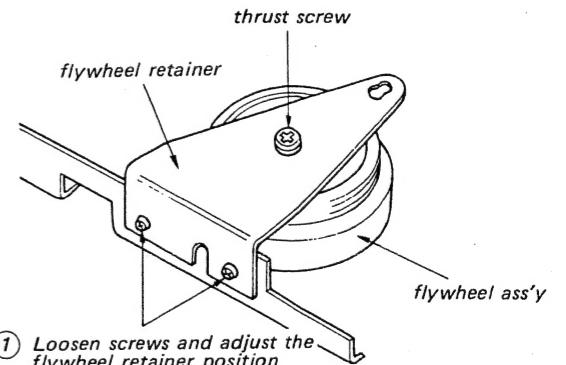


Note: 1. Just when the unit is placed in the playback or the record mode, the clearance between the cam gear and the capstan gear should be more than 2 mm (5/64 inch).

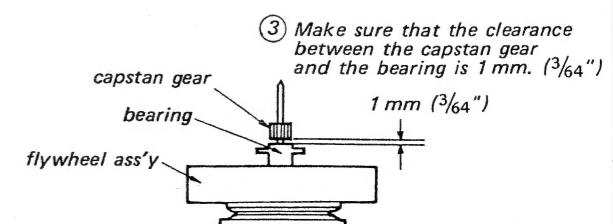
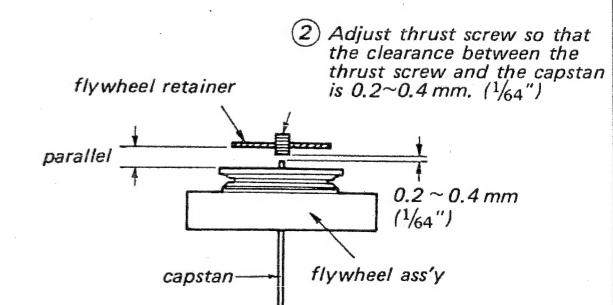
2. Automatic Shut-off Mechanism should operate within 5 sec. at the tape end.
3. Automatic Shut-off Mechanism should not operate with mechanical shock during tape travel.
4. As soon as a tape cassette with no tape remaining on the supply side is inserted, Automatic Shut-off Mechanism should operate.



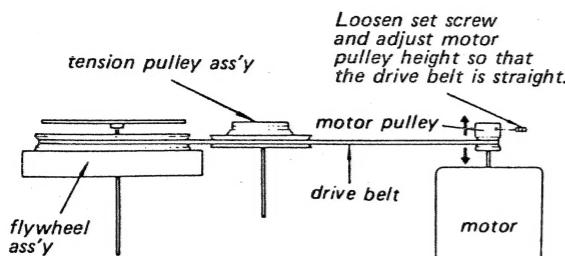
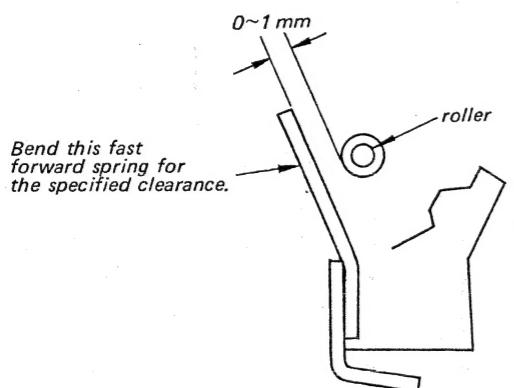
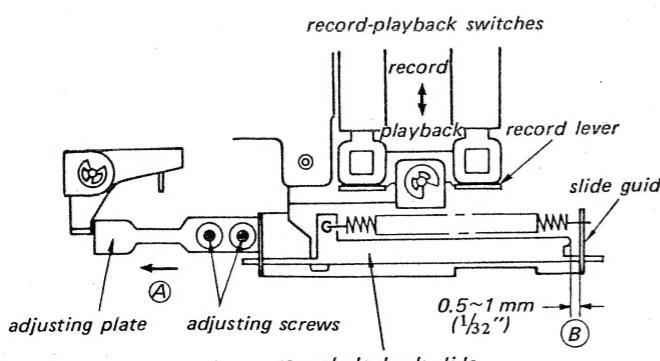
Flywheel Thrust Play Adjustment



- ① Loosen screws and adjust the flywheel retainer position so that the flywheel retainer and flywheel ass'y are parallel.

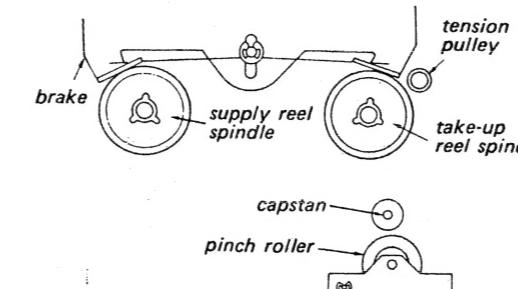
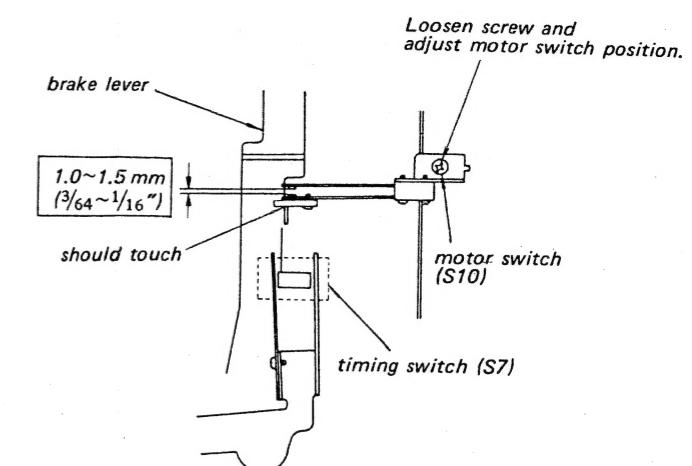


Note: When removing the capstan gear, do not use same one again. Use a new one. Part No. 3-519-034-00.

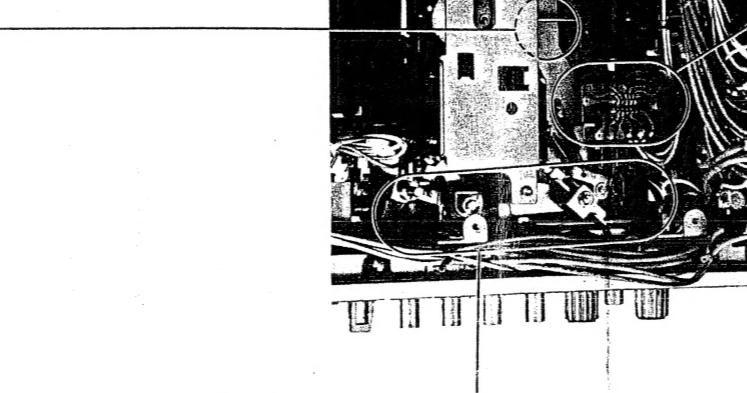
Motor Pulley Height Adjustment**— stop mode —****Fast Forward Spring Adjustment****— stop mode —****Record-playback Slide Position Adjustment****Forward Lever Timing Checks**

Slowly depress the forward lever and make sure the following operations.

1. The brake separates from the both reel spindles.
2. The tension pulley contacts the take-up reel spindle.
3. The motor switch (S10) turns ON and the capstan starts to rotate.
4. The pinch roller contacts the capstan.

**Motor Switch (S10) Adjustment****— stop mode —**

Slowly depress the forward lever and make sure that the timing switch (S7) turns ON after the motor switch (S10) turns ON (closes).



1. Loosen adjusting screws and move the adjusting plate to the full in the direction shown by the arrow (A) in the stop mode.
2. Tighten the adjusting screws.
3. When depressing record lever, make sure that
 - a) the clearance (B) between the record-playback slide and slide guide is 0.5~1 mm (1/32").
 - b) the record-playback switches are pushed by the record-lever and record-playback switches are completely changed over to the record mode position.
4. After above adjustments, make sure that the record-playback switches are not pushed by the record lever in the stop mode.

Torque Measurement

Mode	Torque
Playback	40~60 g·cm (0.56~0.83 oz·inch)
Fast forward Rewind	70~120 g·cm (0.99~1.65 oz·inch)

Checks After the Adjustments

- Forward, fast forward, rewind and REC levers can be locked. And the stop and EJECT levers cannot be locked.
- PAUSE lever can be locked by the first press and can be released by the second press.
- When depressing EJECT lever, cassette lid can be opened in forward mode.

Mode	Control Levers	Remarks
playback	fast forward rewind stop	possible to press
	REC	impossible to press
fast forward	forward rewind stop EJECT	possible to press
	REC	impossible to press
rewind	forward fast forward stop EJECT	possible to press
	REC	impossible to press
record	fast forward rewind stop	possible to press
	EJECT	impossible to press

3-2. ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

Precaution:

1. Clean the following parts with an alcohol moistened swab:

* record/playback head	* pinch roller
* erase head	* rubber belts
* capstan	* idlers
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for adjusting.
4. After adjusting, apply a small amount of locking compound to the parts adjusted.
5. The adjustments should be performed in the order arranged in this service manual.
6. The adjustments and measurements should be performed at both L-CH and R-CH with rated power supply voltage unless otherwise specified.
7. The record and the playback level adjustments should be carefully performed. In case the levels are not as specified, DOLBY circuit will not operate correctly.

Test Equipment/Tools Required:

audio oscillator (af osc)
 VTVM
 digital frequency counter
 oscilloscope
 1 kHz } bandpass filters
 5 kHz }
 attenuator (600Ω)
 non-magnetic screwdriver
 blank tape cassette (completely erased with bulk eraser) CS-10, CS-20, CS-30
 resistors 600 Ω (1/4 W), 10 kΩ (1/4 W),
 100 kΩ (1/4 W)
 SONY test tapes
 SPC-4 (1kHz, 0dB)
 P-4-L81 (333Hz, 0dB)
 P-4-A82 (10kHz, -10dB)

Normal Input Level

	MICROPHONE	LINE IN
impedance input level	300 Ω -60 dB (0.77 mV)	100 kΩ or more -10 dB (0.25 V)

Normal Output Level

	LINE OUT
load impedance output level	100 kΩ 0 dB (0.775 V)

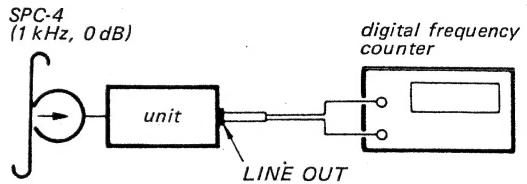
1. Tape Speed Adjustment

Settings:

LIMITER switch: OFF
 TAPE SELECT switch: NORMAL
 INPUT SELECT switch: MIC
 MIC ATT switch: 0 dB

Procedure:

1. Mode: Playback

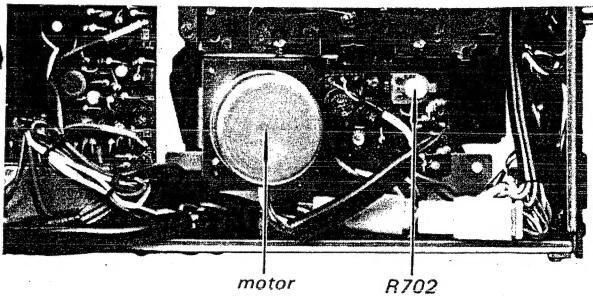


Specification: 985 ~ 1015 Hz

Frequency difference between beginning and end is within 10 Hz.

Adjust	Digital Frequency Counter Reading
R702	1000 Hz

Adjustment Location:



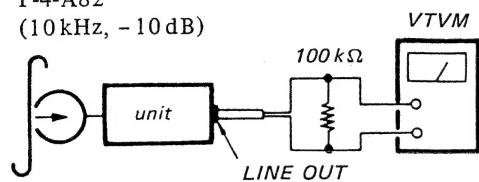
2. Head Azimuth Adjustment**Settings:**

LIMITER switch: OFF
 TAPE SELECT switch: NORMAL
 MIC ATT switch: 0 dB
 INPUT SELECT switch: MIC

Procedure:

1. Mode: Playback

P-4-A82
 (10 kHz, -10 dB)

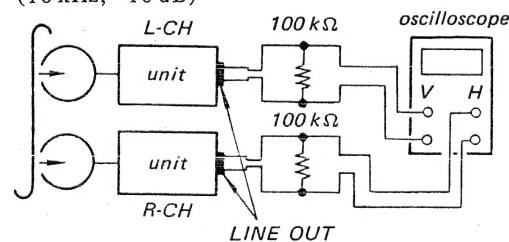


- 2.

Adjust	VTVM reading	Remarks
azimuth adjusting screw	highest peak	If the highest peak readings at L-CH and R-CH can not be obtained at the same screw-position, take the midway between the both positions of the screw.

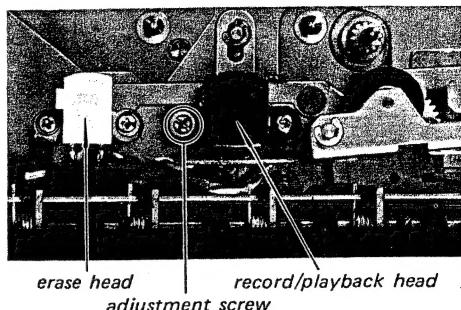
3. Mode: Playback

P-4-A82
 (10 kHz, -10 dB)



- 4.

Adjust	Oscilloscope patterns
azimuth adjusting screw to obtain the in-phase pattern	[Allowance] <i>in-phase</i> ~ <i>90° out of phase</i>

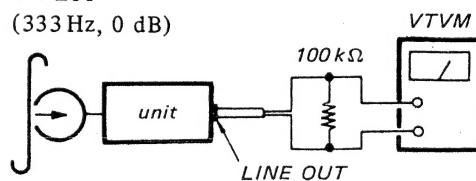
Adjustment Location:**3. Playback Level Adjustment****Settings:**

LIMITER switch: OFF
 TAPE SELECT switch: NORMAL
 MIC ATT switch: 0 dB
 INPUT SELECT switch: MIC

Procedure:

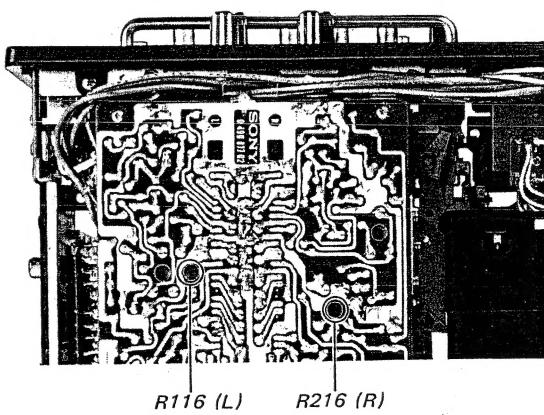
1. Mode: Playback

P-4-L81
 (333 Hz, 0 dB)



- 2.

Adjust	VTVM reading	Remarks
R116 (L-CH)	0 dB	1. Allowance: within ± 0.5 dB
R216 (R-CH)	(0.775 V)	2. Level difference between the L-CH and R-CH should be within 1 dB.

Adjustment Location:

4. Playback Equalizer Adjustment

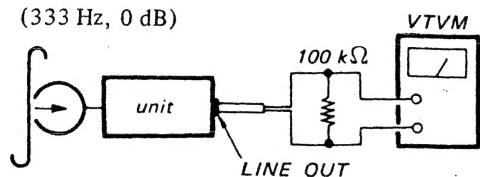
Settings:

LIMITER switch: OFF
 TAPE SELECT switch: NORMAL
 MIC ATT switch: 0 dB
 INPUT SELECT switch: MIC

Procedure:

1. Mode: Playback

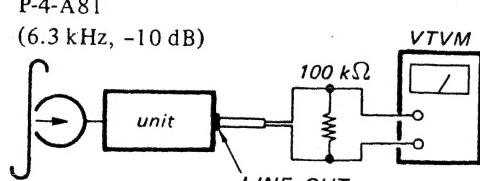
P-4-L81
 (333 Hz, 0 dB)



Note the VTVM reading.

2. Mode: Playback

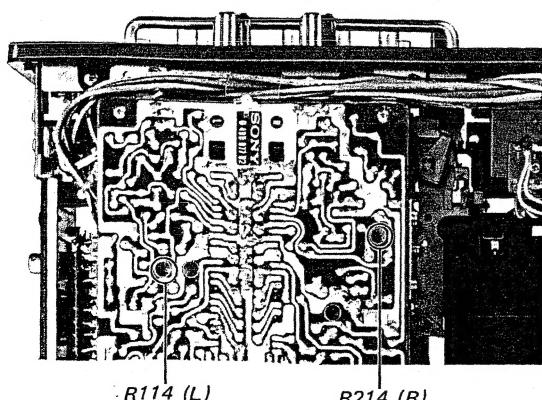
P-4-A81
 (6.3 kHz, -10 dB)



Adjust	VTVM reading	Remarks
R114 (L-CH)	Level in Step 2 is 11 dB lower than level in Step 1.	Allowance: within ± 1.5 dB
R214 (R-CH)		

Note: When adjustable resistors R114 and R214 are turned too much, perform the playback level adjustment on Page 12.

Adjustment Location:



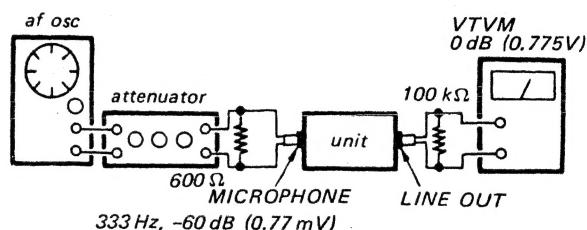
5. LEVEL Meter Calibration

Settings:

MIC ATT switch: 0 dB
 LIMITER switch: OFF
 INPUT SELECT switch: MIC
 TAPE SELECT switch: NORMAL
 REC VOL control: For 0 dB (0.775 V)
 LINE OUT level with
 333 Hz, -60 dB (0.77 mV)
 MICROPHONE input
 signal in record mode.

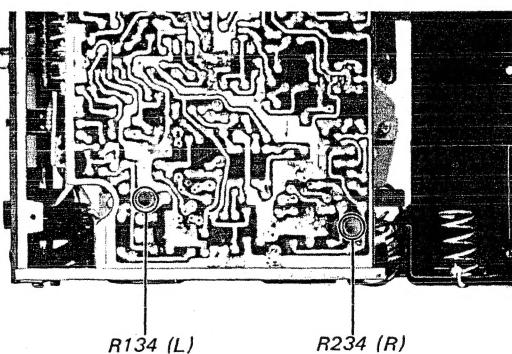
Procedure:

1. Mode: Record



Adjust	LEVEL meter reading: 0 VU
R134 (L-CH)	
R234 (R-CH)	

Adjustment Location:



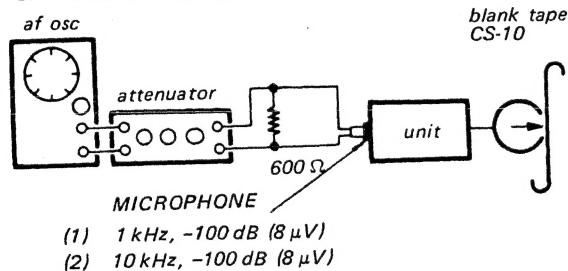
6. Record Bias Adjustment

Settings:

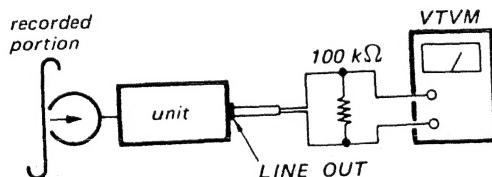
LIMITER switch: OFF
 INPUT SELECT switch: MIC
 TAPE SELECT switch: NORMAL
 MIC ATT switch: 0 dB
 REC VOL control: For 0 dB (0.775 V)
 LINE OUT level with 333 Hz, -60 dB (0.77 mV)
 MICROPHONE input signal in record mode.

Procedure:

1. Mode: Record



2. Mode: Playback

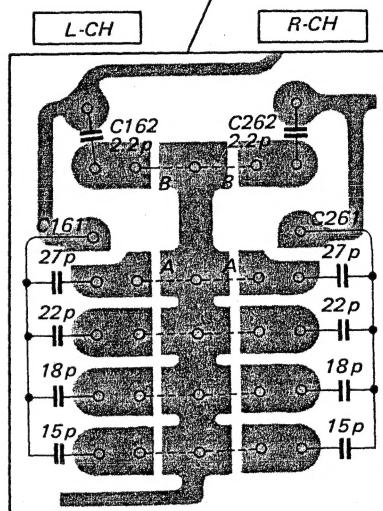
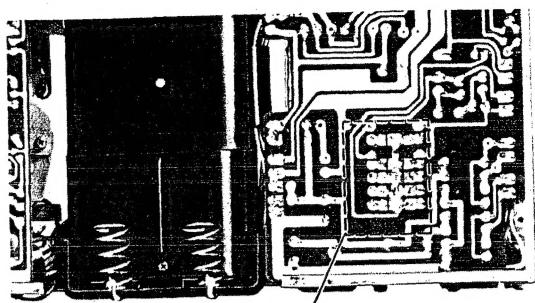


Adjust	VTVM reading
C161 (L-CH) C261 (R-CH)	1 kHz level = 10 kHz level Allowance: within ± 1 dB

Level	Capacitance Value
10 kHz > 1 kHz	increase
10 kHz < 1 kHz	decrease

Adjust capacitance values with connecting the patterns as shown by the dotted lines A and repeat steps 1 and 2. When fine adjustment is necessary, use C162 and C262 (2.2 pF) with connecting the patterns as shown by the dotted lines B.

Adjustment Location:



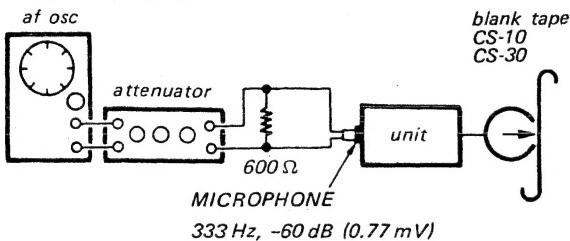
7. Record Level Adjustment

Settings:

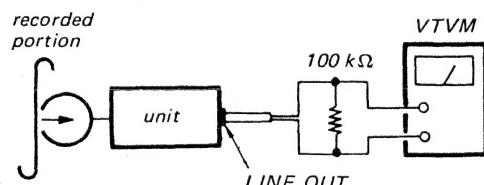
LIMITER switch: OFF
 TAPE SELECT switch: NORMAL
 INPUT SELECT switch: MIC
 MIC ATT switch: 0 dB
 REC VOL control: For 0 dB (0.775 V)
 LINE OUT level with 333 Hz, -60 dB (0.77 mV)
 MICROPHONE input signal in record mode.

Procedure:

1. Mode: Record

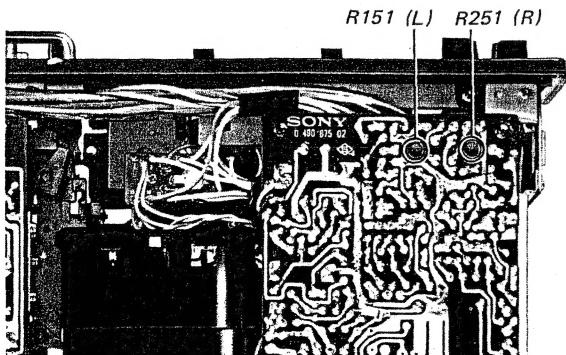


2. Mode: Playback



Adjust	VTVM reading	Remarks
R151 (L-CH)	0 dB (0.775 V)	Allowance: ±0.5 dB (CS-10, TAPE SELECT switch NORMAL) ±2 dB (CS-30, TAPE SELECT switch FeCr)
R251 (R-CH)		

Adjustment Location:



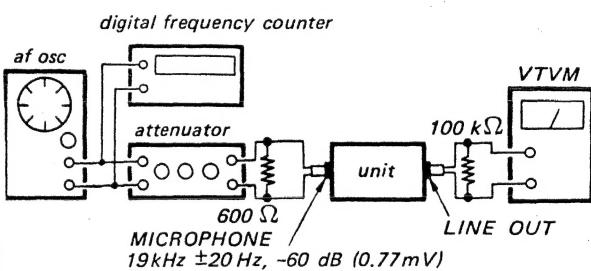
8. 19 kHz Filter Measurement

Settings:

MIC ATT switch: 0 dB
 LIMITER switch: OFF
 INPUT SELECT switch: MIC
 TAPE SELECT switch: NORMAL
 REC VOL control: For 0 dB (0.775 V)
 LINE OUT level with 333 Hz, -60 dB (0.77 mV)
 MICROPHONE input signal in record mode.

Procedure:

1. Mode: Record



Note: 19 kHz pilot signal of stereo signal generator may be used for input signal.

Specification:

-28 dB (31 mV) or less.

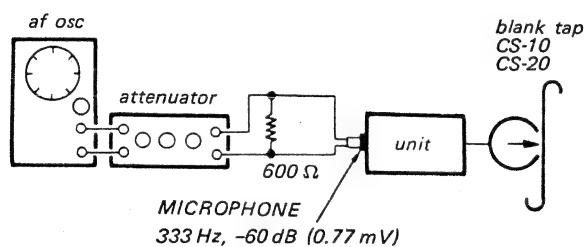
9. Overall Signal-to-Noise Ratio Measurement

Settings:

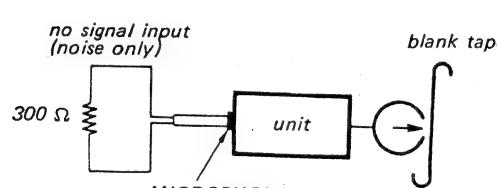
LIMITER switch: OFF
 TAPE SELECT switch: NORMAL
 INPUT SELECT switch: MIC
 MIC ATT switch: 0 dB
 REC VOL control: for 0 dB (0.775 V)
 LINE OUT level with 333 Hz, -60 dB (0.77 mV)
 MICROPHONE input signal in record mode.

Procedure:

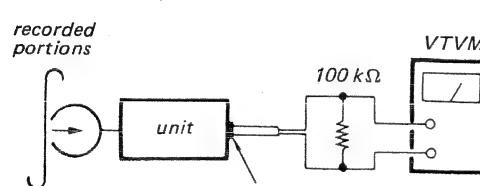
1. Mode: Record



2. Mode: Record



3. Mode: Playback



Playback	VTVM reading
333 Hz	level difference: greater than 43 dB (CS-10, TAPE SELECT switch ... NORMAL) greater than 44 dB (CS-20, TAPE SELECT switch ... CrO ₂)
no signal	

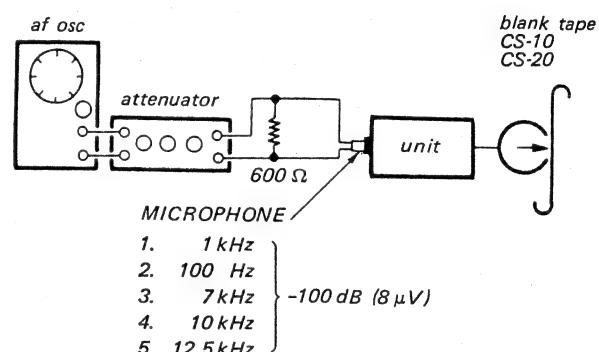
10. Overall Frequency Response Measurement

Settings:

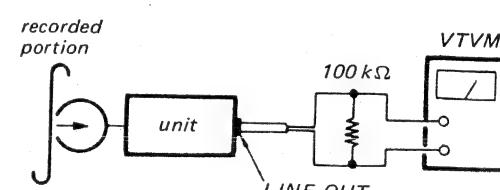
LIMITER switch: OFF
 TAPE SELECT switch: NORMAL
 INPUT SELECT switch: MIC
 MIC ATT switch: 0 dB
 REC VOL control: For 0 dB (0.775 V)
 LINE OUT level with 333 Hz, -60 dB (0.77 mV)
 MICROPHONE input signal in record mode.

Procedure:

1. Mode: Record



2. Mode: Playback



Playback	Output level difference from 1 kHz level	
	DOLBY NR switch: OFF	
	TAPE: CS-20 TAPE SELECT switch: CrO ₂	TAPE: CS-10 TAPE SELECT switch: NORMAL
1 kHz	0 dB (reference)	0 dB (reference)
100 Hz	±3 dB	±3 dB
7 kHz	±3 dB	±2 dB
10 kHz	±3 dB	±2 dB
12.5 kHz	±3 dB	±3 dB

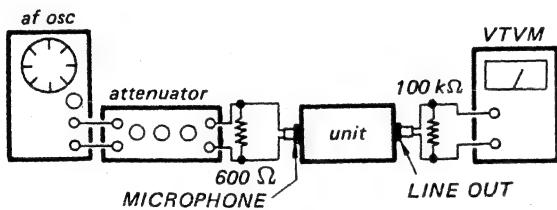
11. LIMITER Response Measurement

Settings:

LIMITER switch: ON
 TAPE SELECT switch: NORMAL
 INPUT SELECT switch: MIC
 MIC ATT switch: 0 dB
 REC VOL control: For 0 dB (0.775 V)
 LINE OUT level with 333 Hz, -60 dB (0.77 mV)
 MICROPHONE input signal in record mode.

Procedure:

1. Mode: Record



1. 333 Hz, -60 dB (0.77 mV)
2. 333 Hz, -30 dB (25 mV)

Input signal	VTVM reading
333 Hz, -60 dB (0.77 mV)	-0.5 dB (0.73 V) ± 0.5 dB
333 Hz, -30 dB (25 mV)	+4.5 dB (1.3 V) ± 1.5 dB

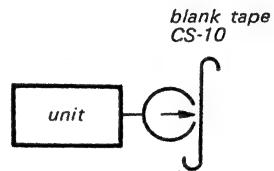
12. DOLBY System Noise Reduction Measurement

Settings:

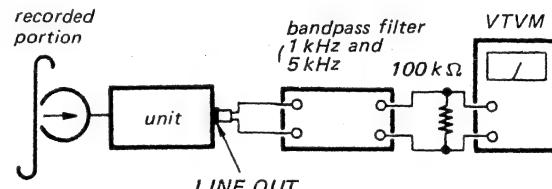
INPUT SELECT switch: MIC
 LIMITER switch: OFF
 TAPE SELECT switch: NORMAL
 MIC ATT switch: 0 dB
 REC VOL control: MIN

Procedure:

1. Set DOLBY NR switch to OFF position.
2. Mode: Record



3. Mode: Playback



Note the VTVM reading.

4. Set DOLBY NR switch to ON position, perform Steps 2 and 3.
5. Make sure that the level difference between the step 3) and step 4) is as specified.

Note: Make sure that DOLBY system improves noise level.

Specification:

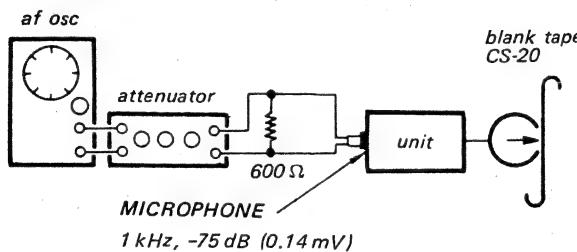
4 dB or more at 1 kHz
 8 dB or more at 5 kHz

13. Erase Ratio Measurement**Settings:**

LIMITER switch: OFF
 TAPE SELECT switch: CrO₂
 INPUT SELECT switch: MIC
 MIC ATT switch: 0 dB
 REC VOL control: For 0 dB (0.775 V)
 LINE OUT level with 333 Hz, -60 dB (0.77 mV)
 MICROPHONE input signal in record mode.

Procedure:

1. Mode: Record



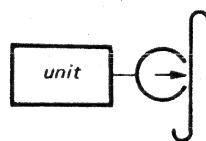
2. Rewind half of recorded portion.

3. Set REC VOL control to MIN position.

4. Mode: Record

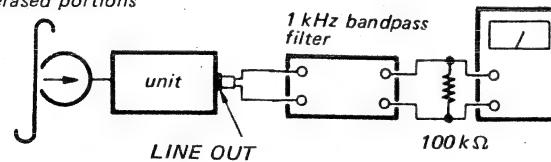
no signal input (erase)

half of recorded portion



5. Mode: Playback

recorded and erased portions



Playback

VTVM reading

1 kHz

level difference: greater than 60 dB

erased portion

14. Cross Talk Measurement (between channels)**Settings:**

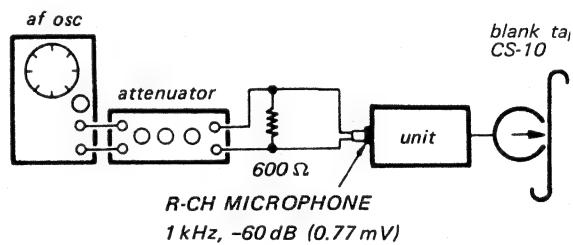
LIMITER switch: OFF
 TAPE SELECT switch: NORMAL
 INPUT SELECT switch: MIC
 MIC ATT switch: 0 dB
 R-CH REC VOL control: For 0 dB (0.775 V)
 LINE OUT level with 333 Hz, -60 dB (0.77 mV)
 MICROPHONE input signal in record mode.

Procedure:

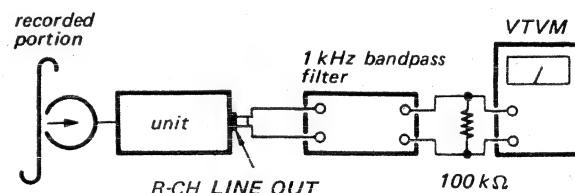
1. Set L-CH REC VOL control to the same position as R-CH REC VOL control.

2. Terminate L-CH MICROPHONE jack with 300 Ω resistor.

3. Mode: Record



4. Mode: Playback



Playback

VTVM reading

R-CH (1 kHz)

level difference:

L-CH (no signal)

greater than 25 dB

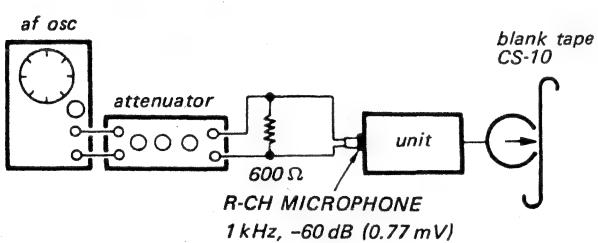
15. Cross Talk Measurement (between tracks)

Settings:

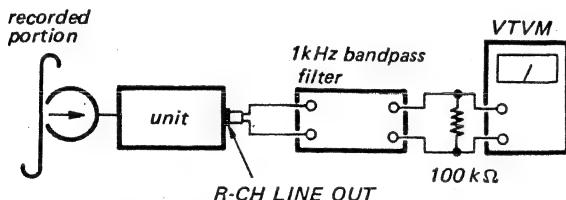
LIMITER switch: OFF
 TAPE SELECT switch: NORMAL
 INPUT SELECT switch: MIC
 MIC ATT switch: 0dB
 R-CH REC VOL control: For 0 dB (0.775 V)
 LINE OUT level with
 333 Hz, -60 dB (0.77 mV)
 MICROPHONE input
 signal in record mode.

Procedure:

1. Set L-CH REC VOL control to the same position as the R-CH REC VOL control.
2. Terminate L-CH MICROPHONE jack with $300\ \Omega$ resistor.
3. Mode: Record

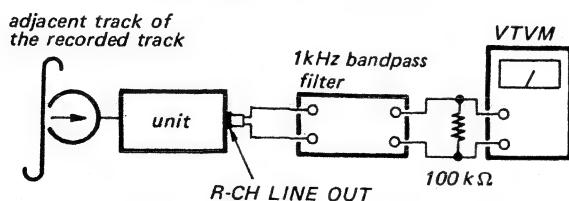


4. Mode: Playback



5. Turn the cassette over.

6. Mode: Playback



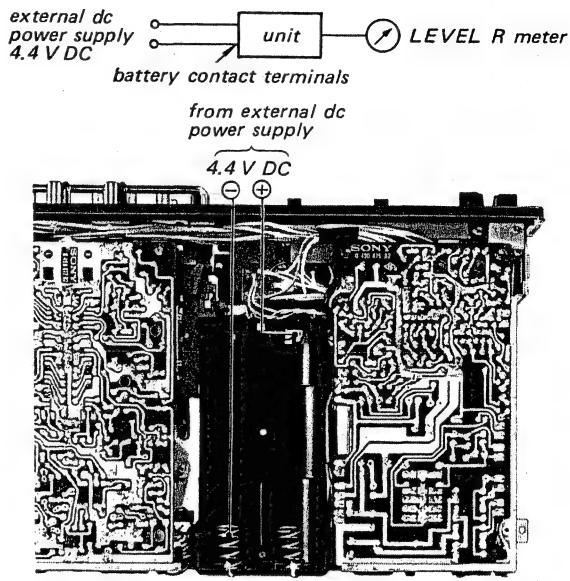
Playback	VTVM reading
1 kHz	level difference: greater than 60 dB
adjacent track of the recorded track	

16. BATTERY CHECK Calibration

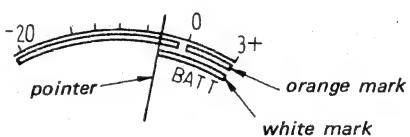
Settings:

Forward lever: depressed
 External Dc Power Supply: 4.4 V DC regulated

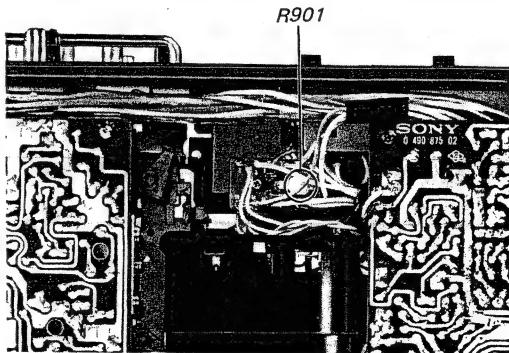
Procedure:



Press BATTERY CHECK button and adjust R901 so that the pointer of LEVEL R meter places right on the leftmost edge of the white mark.



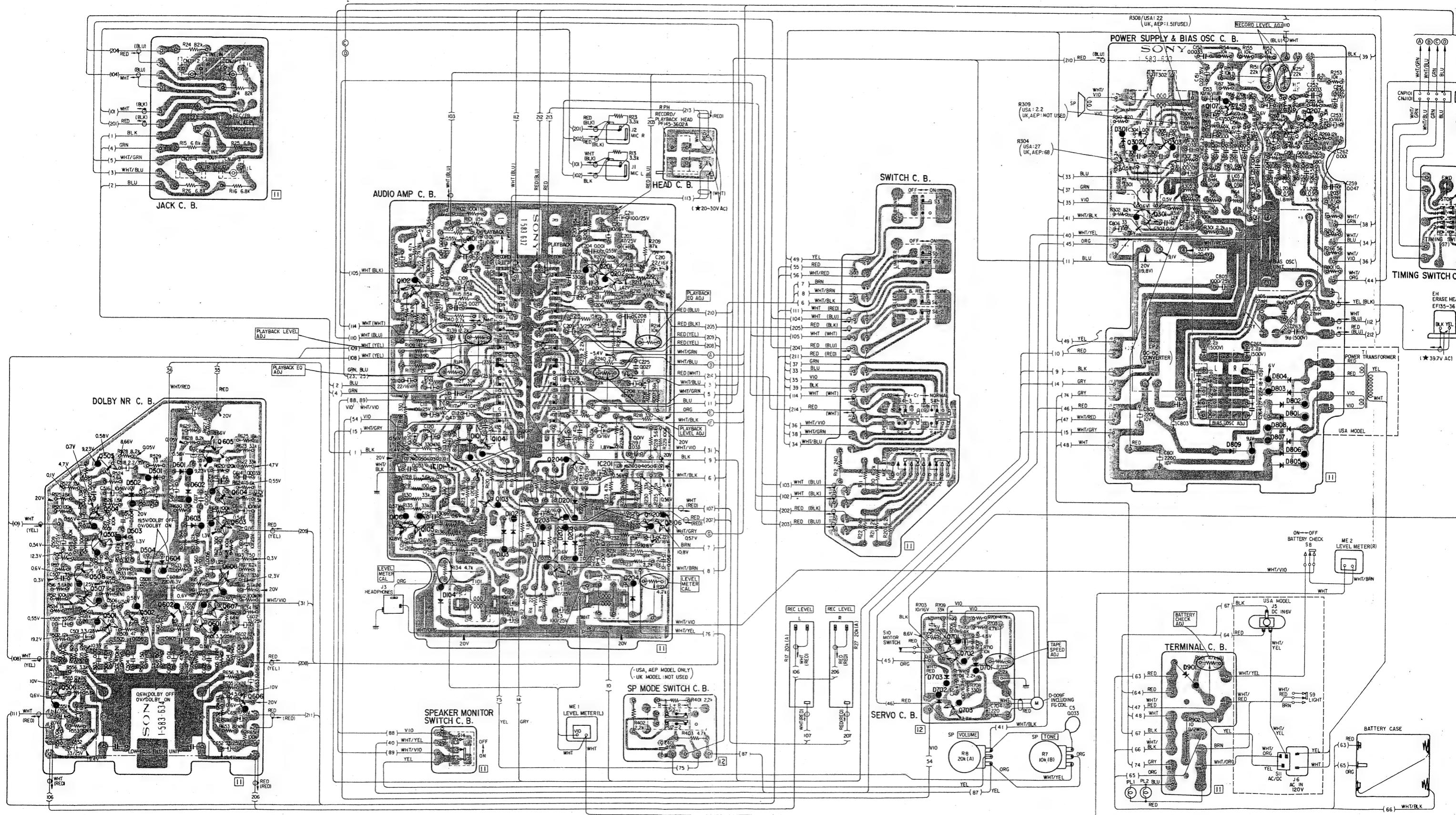
Adjustment Location:



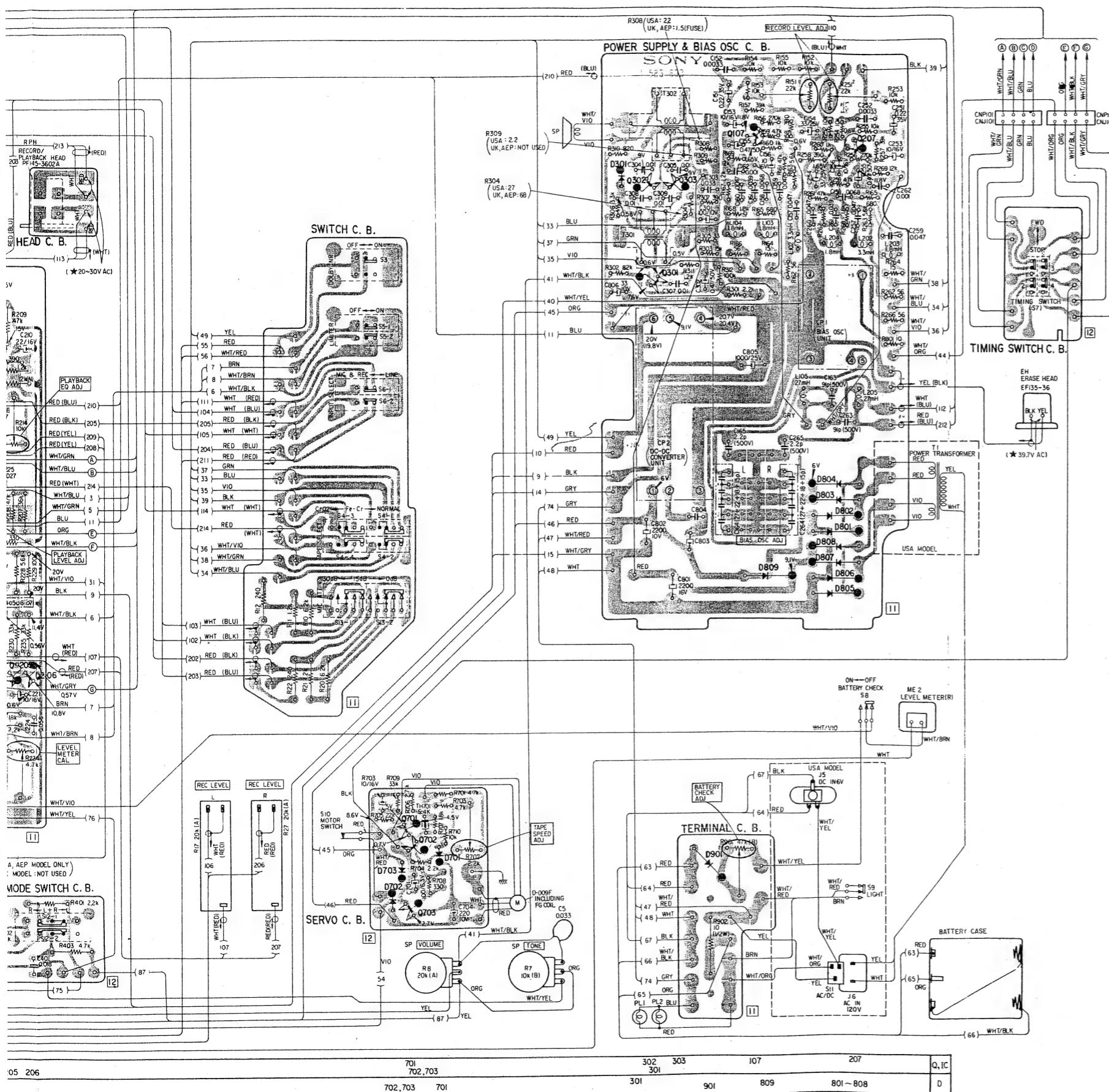
4-1. MOUNTING DIAGRAMS

— Conductor Side —

SECTION 4 DIAGRAMS



Q, IC	508 506 507	505,504,503 501 502	602	605,604,603,608 601,607 606	102 106	IC101 105	101 103	104 103	203 1	204 201	202 201	IC201 205	701 702,703	302 301	303 301	107	207	Q, IC
0		502 503	501 504	601,602 604		101 104		101 103	102 101	1	202 203	204 201		702,703 701	301 901	809 801~808		0



Q101 (201), 102 (202)
Q506 (606), 507 (607)
Q508 (608) 2SC631A

Q103 (203), 104 (204)
Q106 (206), Q1, 702
Q107 (207), Q301
Q501 (601), 502 (602)
Q503~505 (603~605) 2SC633A

Q701: 2SA677
1T40

D101 (201), 103 (203)
D1, 701, 703, 901
D104 (204)
D501 (601) 1T22A
D502 (602)

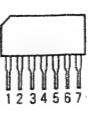
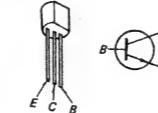
D301: 1S2076
cathode
anode

D503 (603)
D504 (604) 1S1555

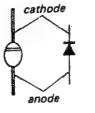
D702: 1T262

cathode
anode

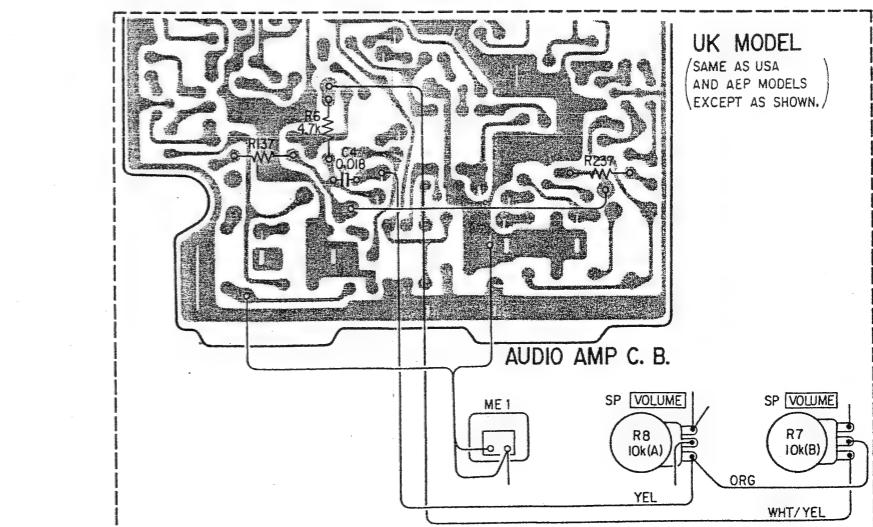
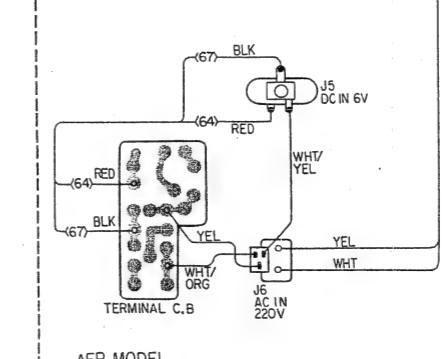
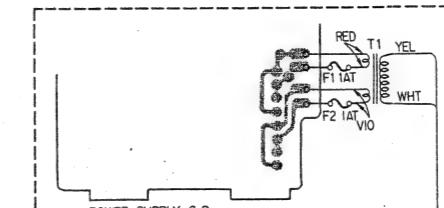
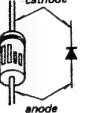
Q302, 303, 703: 2SC1474 IC101 (201): TA7122AP



D102 (202): VO-6C

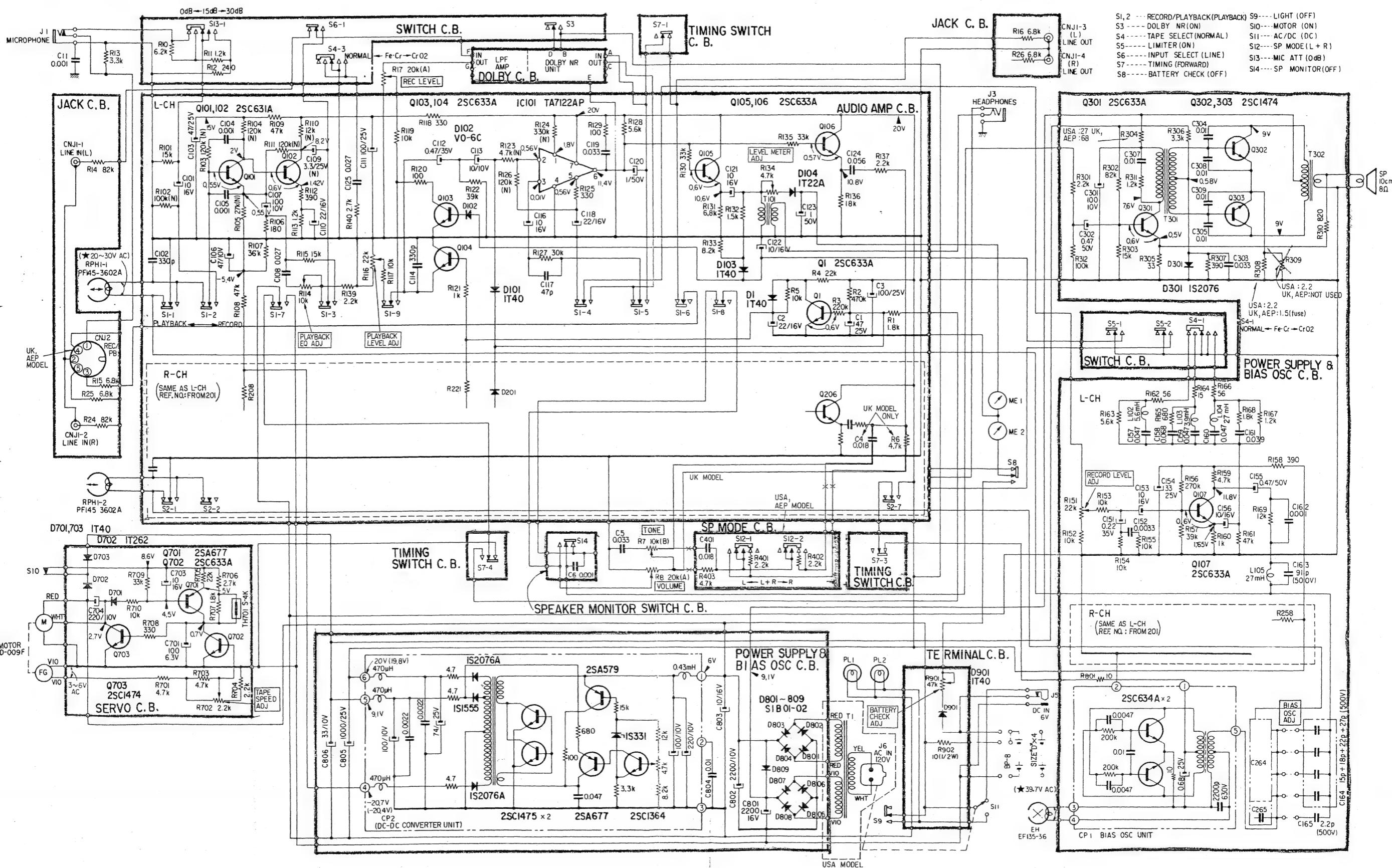


D801~809: SIB01-02



UK MODEL
(SAME AS USA AND AEP MODELS EXCEPT AS SHOWN.)

4-2. SCHEMATIC DIAGRAM

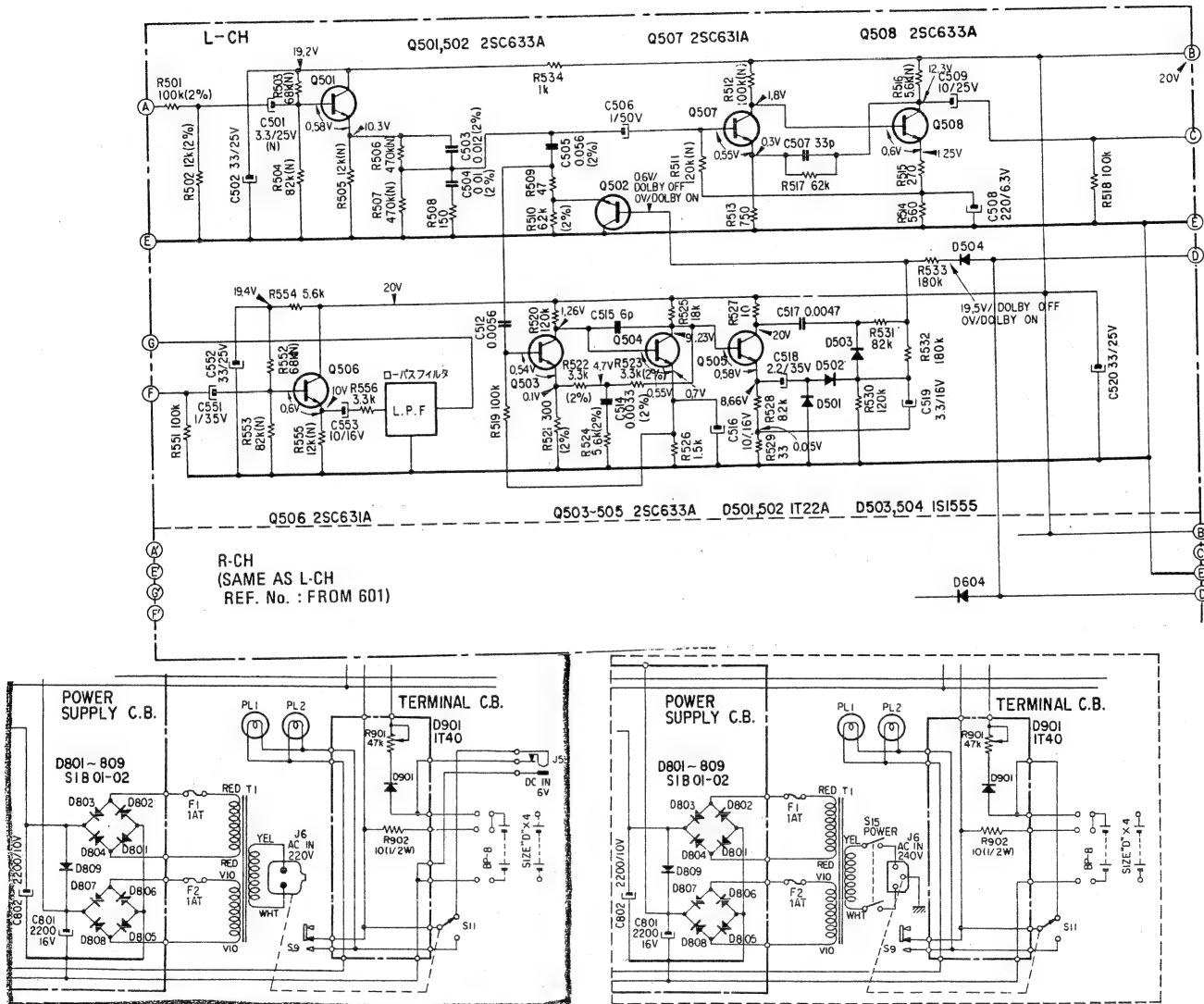


CORRECTION

Subject: File this correction with service manual

Sep.

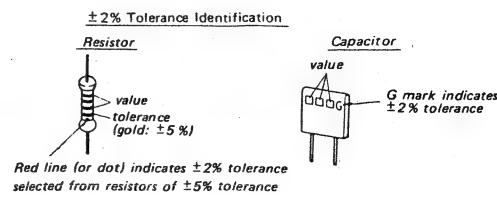
Change the Dolby circuit diagram on page 25 of the manual to the following diagram.



Note:

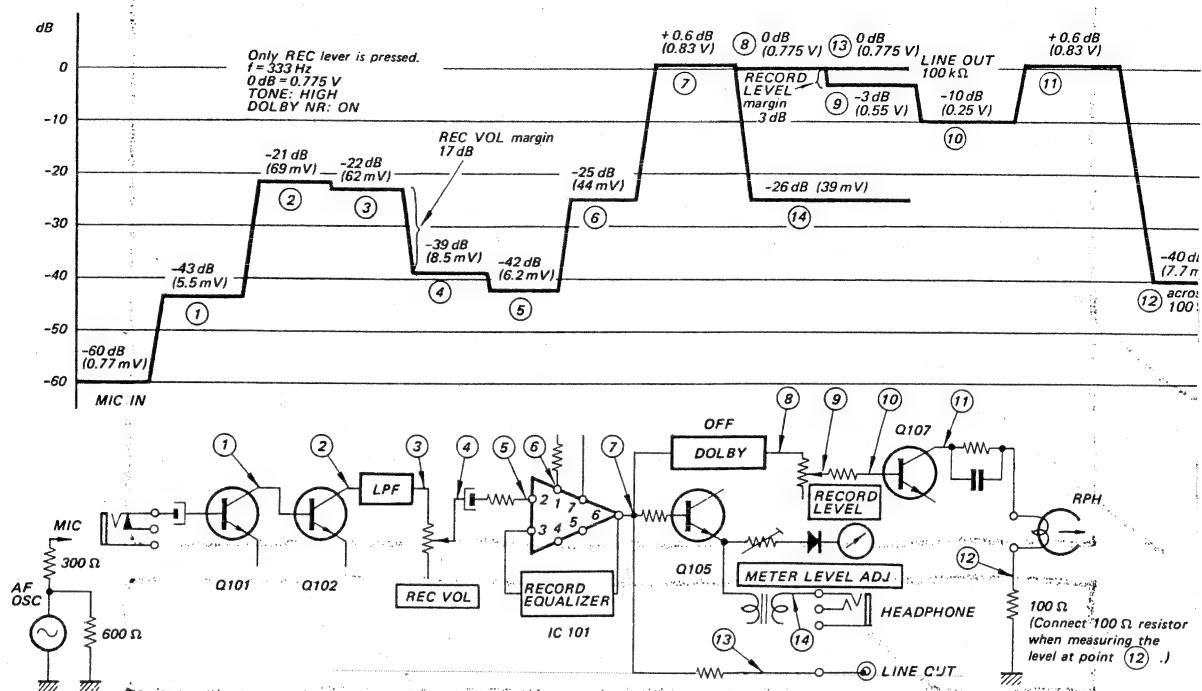
- All capacitors are in μF unless otherwise noted. $\text{p} = \mu\text{F}$
- All resistors are in Ω , $\frac{1}{4}\text{W}$, unless otherwise noted. $\text{k} = 1,000 \text{ M} = 1,000 \text{ k}$
- Circuit shown with red colour.
- (N) indicates a low-noise resistor.
- C.B. : Circuit Board is for the UK and NEP models.
- Voltages are DC with respect to ground unless otherwise noted. Readings taken under no-signal conditions with a VOM ($20\text{k}\Omega/\text{V}$).
- Readings in () are in record mode.
- Voltage variations may be noted due to normal production tolerances.

- AC voltage readings on bias oscillator circuit taken with a VTVM.
- When replacing resistors and capacitors needing $\pm 2\%$ tolerance, use only those with red line or G mark, as DOLBY system requires precise circuit operation.

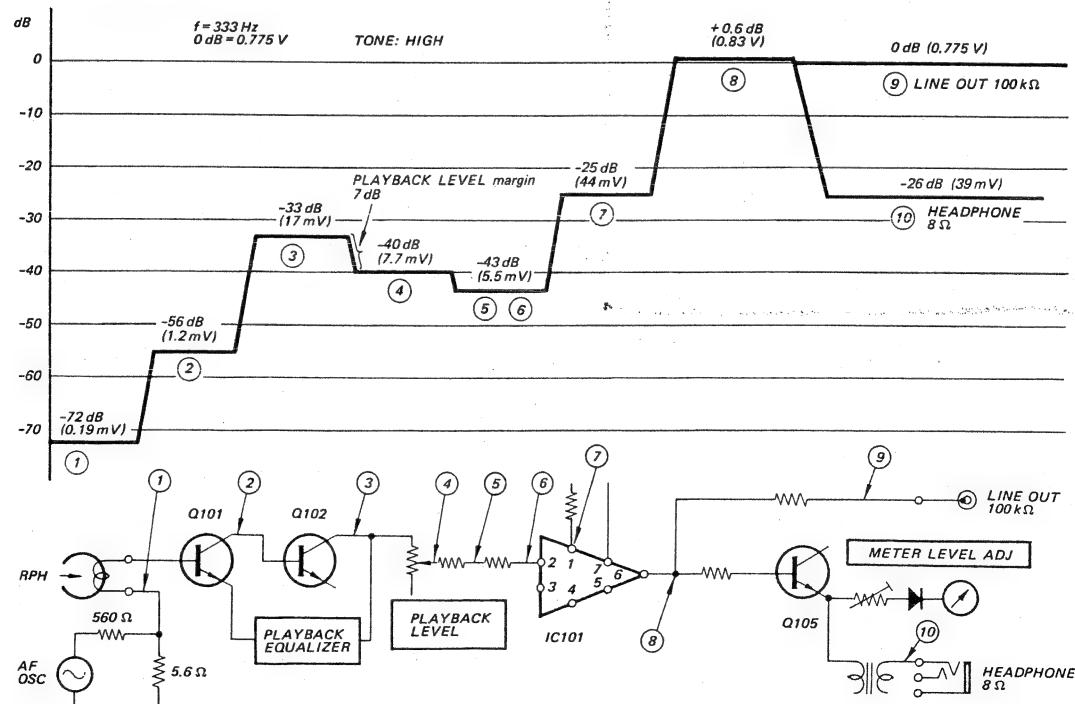


4-3. LEVEL DIAGRAMS

— Record Mode —

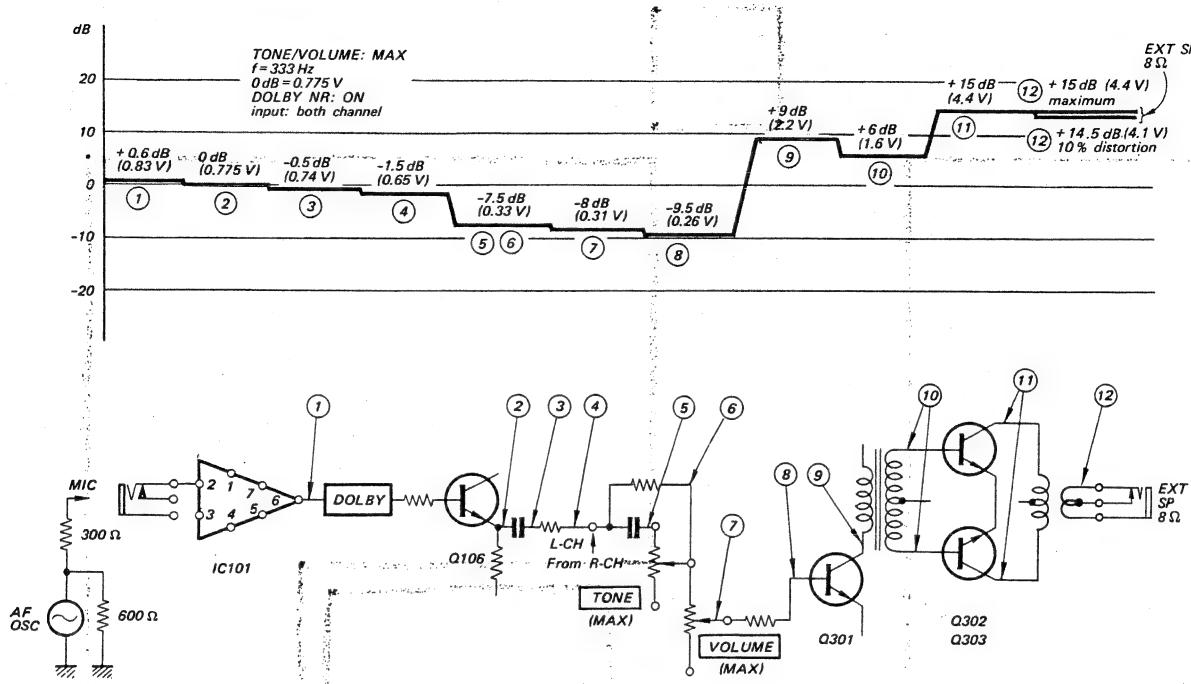


— Playback Mode —



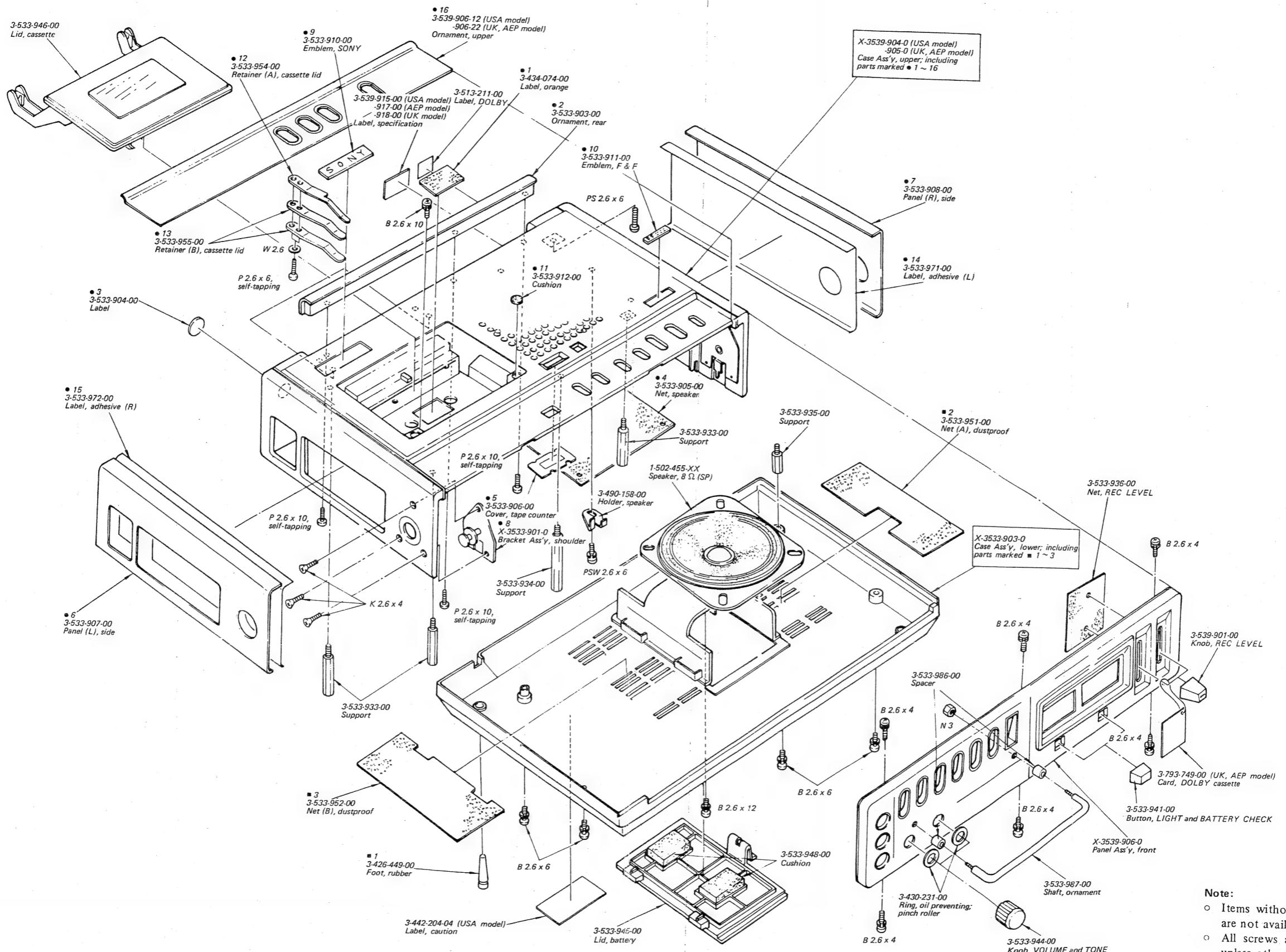
— Amplifier Mode —

Only the REC lever is pressed



SECTION 5 EXPLODED VIEWS

5-1. EXPLODED VIEW (1)

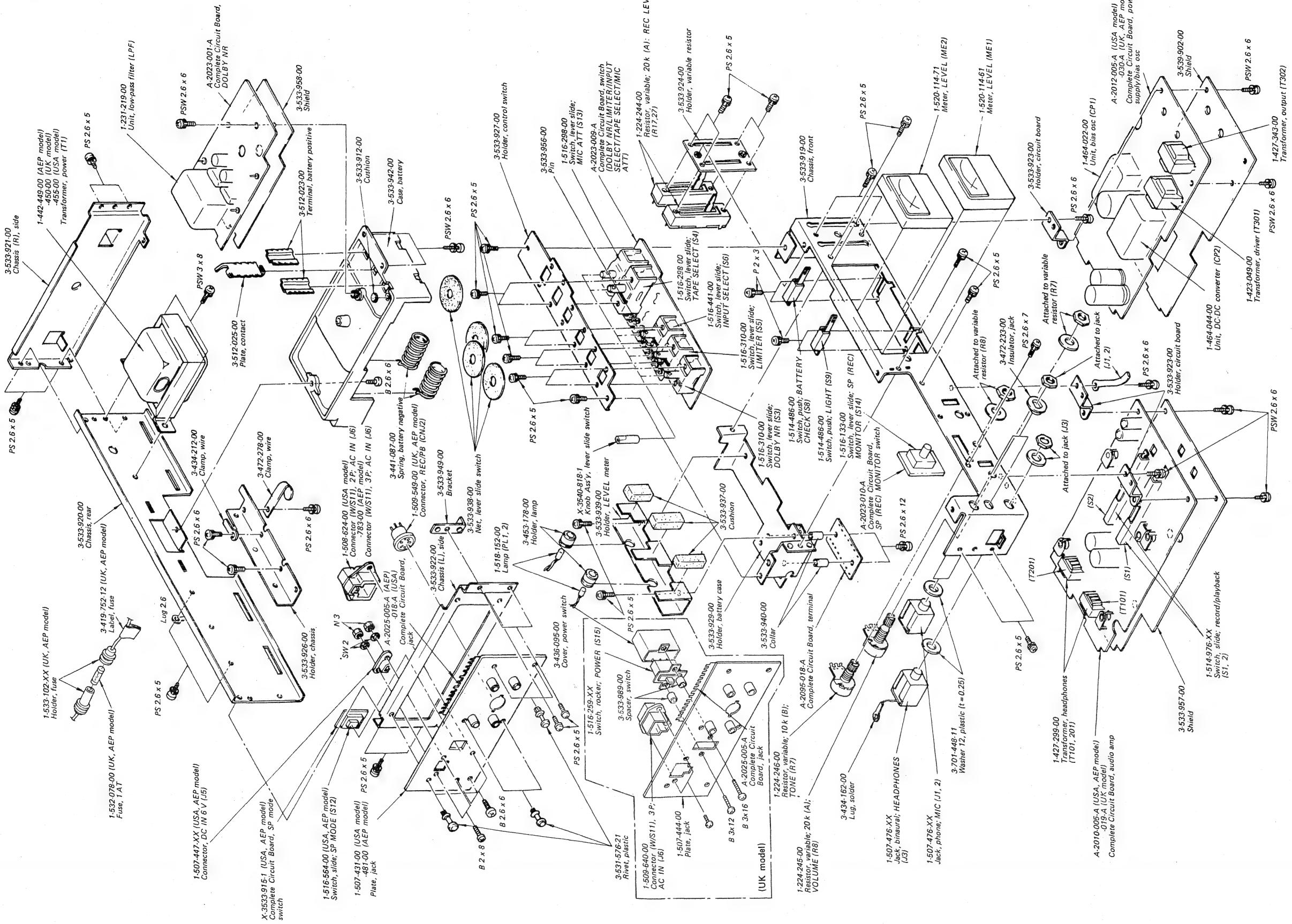


Note:

- Items without part number and description are not available.
- All screws are Phillips (cross recess) type unless otherwise noted.
(-) = slotted head

TC-153SD **TC-153SD**

5-2. EXPLODED VIEW (2)

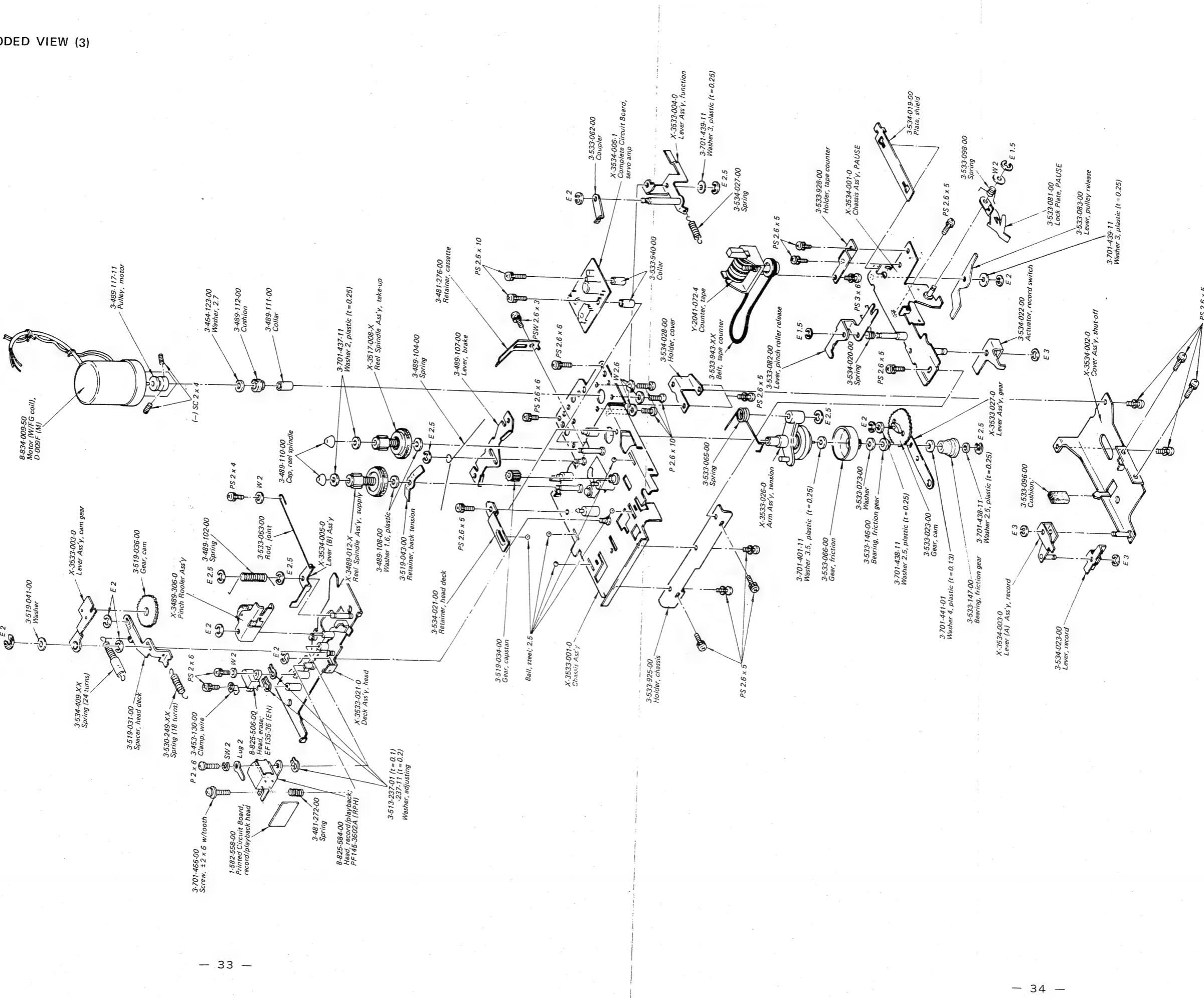


Note:

- Items without part number and description are not available.
- All screws are Phillips (cross recess) type unless otherwise noted.
(-) = slotted head

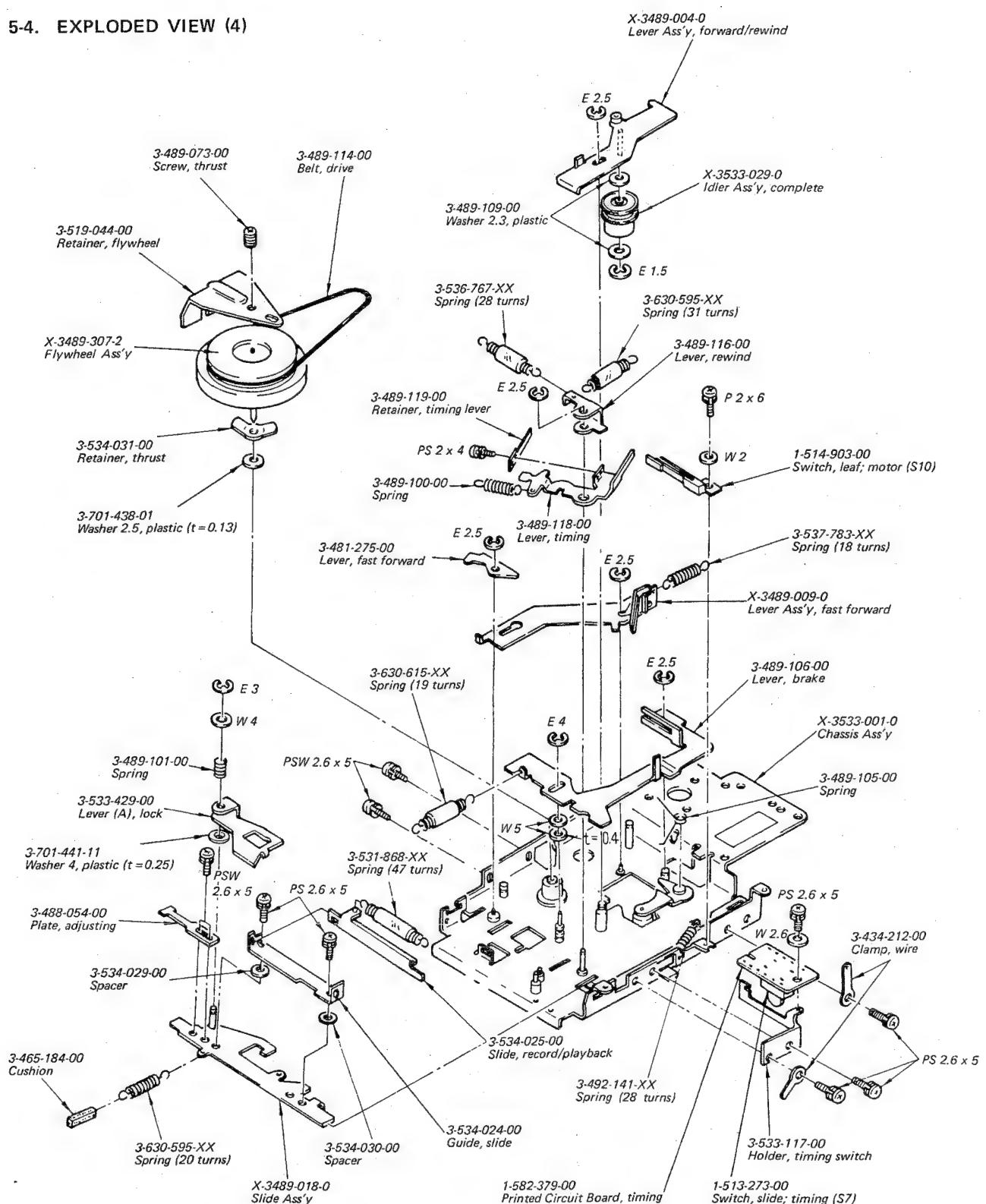
TC-153SD

5-3. EXPLODED VIEW (3)



Note: Items without part number, and description are not available.
All screws are Phillips (cross recess) type unless otherwise noted.
(-) = slotted head

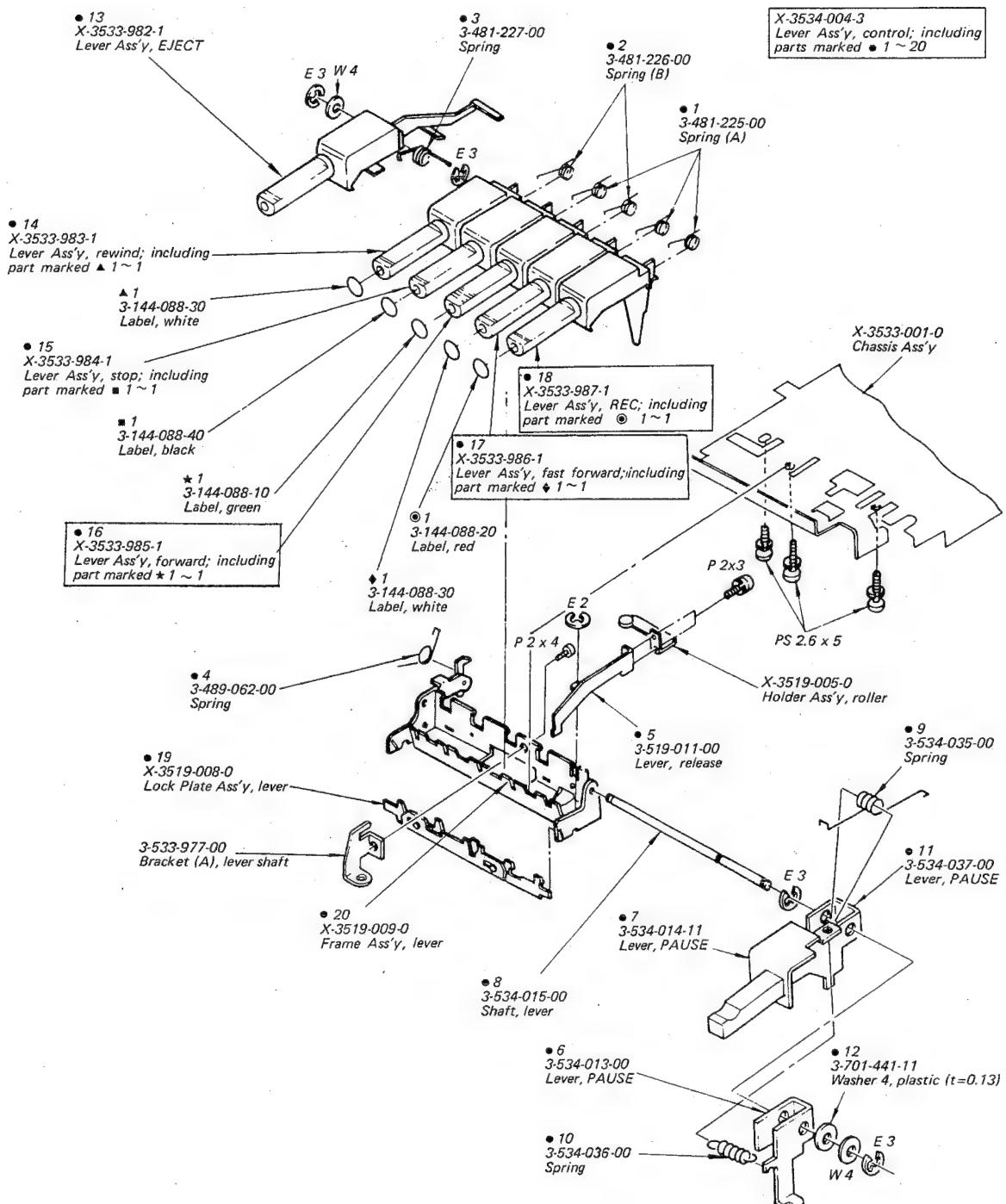
5-4. EXPLODED VIEW (4)



Note:

- Items without part number and description are not available.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (-) = slotted head

5-5. EXPLODED VIEW (5)



Note:

- Items without part number and description are not available.
- All screws are Phillips (cross recess) type unless otherwise noted.
(-) = slotted head

SECTION 6

ELECTRICAL PARTS LIST

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
		COMPLETE CIRCUIT BOARDS			
A-2010-005-A		Audio Amp (USA, AEP model)	Q701		2SA677
A-2010-019-A		Audio Amp (UK model)	Q702		2SC633A
A-2012-005-A		Power Supply & Bias Osc (USA model)	Q703		2SC1474
- A-2012-030-A		Power Supply & Bias Osc (UK, AEP model)	IC101,201		TA7122AP
A-2023-009-A		Switch (DOLBY NR/LIMITER/ INPUT SELECT/TAPE SELECT/ MIC ATT)			Diodes
A-2023-010-A		SP MONITOR switch	D1		1T40
A-2025-005-A		Jack (UK, AEP model)	D101,201		1T40
A-2025-018-A		Jack (USA model)	D102,202		VO6C
- A-2030-001-A		DOLBY NR	D103,203		1T40
A-2095-018-A		Terminal	D104,204		1T22
X-3533-915-0		SP MODE switch (USA, AEP model)	D301		1S2076
- X-3534-006-1		Servo amp	D501,601		
			502,602		1T22
			DS03,603		
			504,604		1S1555
			D701		1T40
			D702		1T262
			D703		1T40
		PRINTED CIRCUIT BOARDS			
1-582-379-00		Timing	D801~809		SIB01-02
1-582-558-00		Record/Playback head	D901		1T40
		SEMICONDUCTORS			COILS
		Transistors			
Q1		2SC633A	L102,202	1-407-203-XX	5.6 mH, microinductor
Q101,201			L103,203	1-407-201-XX	3.9 mH, microinductor
102,202		2SC631A	L104,204	1-407-593-00	27 mH, microinductor
Q103~107					
203~207		2SC633A			
Q301		2SC633A			
Q302,303		2SC1474			
Q501~505					
601~605		2SC633A			
Q506,606					
507,607		2SC631A			
Q508,608					
		2SC633A			
					TRANSFORMERS
			T1	1-442-449-11	Power (AEP model)
			T1	1-442-450-11	Power (UK model)
			T1	1-442-455-11	Power (USA model)
			T101,201	1-427-299-00	Headphones
			T301	1-423-049-00	Driver
			T302	1-427-343-00	Output
			Th701	1-800-200-00	Thermistor S-4K

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>								
CAPACITORS															
All capacitors are in μ F unless otherwise indicated. 50 or less working volts are omitted except for electrolytic type (elect = electrolytic, p = μ μ F).															
C1	1-121-410-11	47	25V	elect	C157,257	1-105-521-12	0.047	mylar							
C2	1-121-479-11	22	16V	elect	C158,258	1-105-523-12	0.068	mylar							
C3	1-121-416-11	100	25V	elect	C159,259	1-105-521-12	0.047	mylar							
C4	1-108-358-11	0.018		mylar (UK model)	160,260	1-105-521-12	0.047	mylar							
C5	1-105-679-12	0.033		mylar	C161,261	1-105-520-12	0.039	mylar							
					C162,262	1-105-661-12	0.001	mylar							
C11,12	1-101-455-11	0.001		ceramic	C163,263	1-107-168-11	91p	500V	silvered mica						
C101,201	1-121-651-11	10	16V	elect	C164,264	1-107-253-11	15+18+22+27p								
C102,202	1-102-112-11	330p		ceramic				500V	silvered mica						
C103,203	1-121-410-11	47	25V	elect	C165,265	1-107-042-11	2.2p	500V	silvered mica						
C104,204	1-105-661-12	0.001		mylar											
105,205					C301	1-121-414-11	100	10V	elect						
C106,206	1-121-352-11	47	10V	elect	C302	1-121-726-11	0.47	50V	elect						
C107,207	1-121-414-11	100	10V	elect	C303	1-105-679-12	0.033	mylar							
C108,208	1-105-518-12	0.027		mylar	C304,305	1-105-673-12	0.01	mylar							
C109,209	1-121-913-11	3.3	25V	elect	308,309										
C110,210	1-121-479-11	22	16V	elect	C401	1-105-676-12	0.018	mylar							
C111,211	1-121-416-11	100	25V	elect	C501,601	1-121-913-11	3.3	25V	elect low-noise						
C112,212	1-131-213-11	0.47		solid tantalum	C502,602	1-121-404-11	33	25V	elect						
C113,213	1-131-193-11	10		solid tantalum	C503,603	1-129-896-11	0.012	100V	$\pm 2\%$ plastic						
C114,214	1-102-112-11	330p		ceramic	C504,604	1-129-701-11	0.01	100V	$\pm 2\%$ plastic						
C116,216	1-121-651-11	10	16V	elect	C505,605	1-129-899-11	0.056	100V	$\pm 2\%$ plastic						
C117,217	1-107-123-11	47p		silvered mica	C506,606	1-121-391-11	1	50V	elect						
C118,218	1-121-479-11	22	16V	elect	C507,607	1-107-119-11	33p		silvered mica						
C119,219	1-105-679-12	0.033		mylar	C508,608	1-121-419-11	220	6.3V	elect						
C120,220	1-121-391-11	1	50V	elect	C509,609	1-121-398-11	10	25V	elect						
C121,221	1-121-651-11	10	16V	elect	C512,612	1-105-670-12	0.0056		mylar						
122,222					C514,614	1-129-794-11	0.0033	100V	$\pm 2\%$ plastic						
C123,223	1-121-391-11	1	50V	elect	C515,615	1-107-103-11	6p		silvered mica						
C124,224	1-105-682-12	0.056		mylar	C516,616	1-121-651-11	10	16V	elect						
C125,225	1-105-518-12	0.027		mylar	C517,617	1-105-669-12	0.0047		mylar						
C151,251	1-131-211-11	0.22		solid tantalum	C518,618	1-131-217-11	2.2		solid tantalum						
C152,252	1-105-667-12	0.0033		mylar	C519,619	1-131-197-11	3.3								
C153,253	1-121-651-11	10	16V	elect	C520	1-121-404-11	33	25V	elect						
C154,254	1-121-404-11	33	25V	elect	C551,651	1-131-215-11	1		solid tantalum						
C155,255	1-121-726-11	0.47	50V	elect	C552,652	1-121-404-11	33	25V	elect						
C156,256	1-121-651-11	10	16V	elect	C553,653	1-121-651-11	10	16V	elect						
					C701	1-121-413-11	100	6.3V	elect						
					C703	1-121-651-11	10	16V	elect						
					C704	1-121-420-11	220	10V	elect						
					C801	1-121-660-11	2200	16V	elect						
					C802	1-121-659-11	2200	10V	elect						

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>		
C805	1-121-657-11	1000	25V	elect	R553,653	1-242-719-09	82k	1/4W	low-noise
C808	1-121-402-11	33	10V	elect	R555,655	1-242-699-09	12k	1/4W	low-noise
					R705	1-222-762-00	2.2k	adjustable	
					R901	1-222-765-00	47k	adjustable	
RESISTORS									
All resistors are in Ω , 1/4W, $\pm 5\%$ carbon type resistors (except special type) are omitted. Check schematic diagram for the resistance values. K = 1000, M = 1000 K									
R7	1-224-246-00	10k (B), variable			S1,2	1-514-976-21	Slide, record/playback		
R8	1-224-245-00	20k (A), variable			S3	1-516-310-00	Lever Slide, DOLBY NR		
R17,27	1-224-244-00	20k (A), variable			S4	1-516-298-00	Lever Slide, TAPE SELECT		
R102,202	1-244-721-09	100k	1/4W	low-noise	S5	1-516-310-00	Lever Slide, LIMITER		
R103,203 104,204	1-244-723-09	120k	1/4W	low-noise	S6	1-516-441-00	Lever Slide, INPUT SELECT		
R105,205	1-244-707-09	27k	1/4W	low-noise	S7	1-513-273-00	Slide, timing		
R110,210	1-244-699-09	12k	1/4W	low-noise	S8	1-514-486-00	Push, BATTERY CHECK		
R111,211	1-244-723-09	120k	1/4W	low-noise	S9	1-514-486-00	Push, LIGHT		
R114,214	1-222-774-00	10k, adjustable			S10	1-514-903-00	Leaf, motor		
R116,216	1-222-775-00	22k, adjustable			S11		included in J6 (AC IN)		
R123,223	1-244-689-09	4.7	1/4W	low-noise	S12	1-514-564-11	Slide, SP MODE (USA,AEP model)		
R124,224	1-244-733-09	330k	1/4W	low-noise	S13	1-516-298-00	Lever Slide, MIC ATT		
R126,226	1-244-723-09	120k	1/4W	low-noise	S14	1-516-133-00	Lever Slide, SP MONITOR		
R134,234	1-222-773-00	4.7k, adjustable			S15	1-516-259-21	Rocker, POWER (UK model)		
R151,251	1-222-775-00	22k, adjustable							
R501,601	1-210-689-11	100k	1/4W	$\pm 2\%$					
R502,602	1-210-868-11	12k	1/4W	$\pm 2\%$					
R503,603	1-242-719-09	68k	1/4W	low-noise					
R504,604	1-242-719-09	82k	1/4W	low-noise					
R505,605	1-242-699-09	12k	1/4W	low-noise					
R506,606 507,607	1-242-737-09	470k	1/4W	low-noise					
R510,610	1-210-853-11	6.2k	1/4W	$\pm 2\%$					
R511,611	1-242-723-09	120k	1/4W	low-noise					
R512,612	1-242-721-09	100k	1/4W	low-noise					
R516,616	1-242-691-09	5.6k	1/4W	low-noise					
R521,621	1-210-850-11	300	1/4W	$\pm 2\%$					
R522,622 523,623	1-210-855-11	33k	1/4W	$\pm 2\%$					
R524,624	1-210-852-11	5.6k	1/4W	$\pm 2\%$					
R552,652	1-242-717-09	68k	1/4W	low-noise					

SWITCHES

1-552-836-00		
1-514-976-21	Slide, record/playback	
S3	1-516-310-00	Lever Slide, DOLBY NR
S4	1-516-298-00	Lever Slide, TAPE SELECT
S5	1-516-310-00	Lever Slide, LIMITER
S6	1-516-441-00	Lever Slide, INPUT SELECT
S7	1-513-273-00	Slide, timing
S8	1-514-486-00	Push, BATTERY CHECK
S9	1-514-486-00	Push, LIGHT
S10	1-514-903-00	Leaf, motor
S11		included in J6 (AC IN)
S12	1-514-564-11	Slide, SP MODE (USA,AEP model)
S13	1-516-298-00	Lever Slide, MIC ATT
S14	1-516-133-00	Lever Slide, SP MONITOR
S15	1-516-259-21	Rocker, POWER (UK model)

JACKS

CNJ1-1~4	1-507-188-00	Mini, LINE IN/LINE OUT
CNJ2	1-509-549-11	Connector, REC/PB (UK, AEP mode)
J1,2	1-507-476-XX	Phone, MIC
J3	1-507-476-XX	Binaural, HEADPHONES
J5	1-507-447-XX	DC IN 6V (USA, AEP model)
J6	1-508-624-11	Connector, 2p; AC IN (USA model)
J6	1-509-640-11	Connector, 3p; AC IN (UK model)
J6	1-509-783-11	Connector, 2p; AC IN (AEP model)

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Description</u>
MISCELLANEOUS				
CNJ1	1-507-431-11	Plate, jack	X-3701-018-2	Cleaning Tips (UK, AEP model)
CP1	1-464-022-00	Unit, bias osc	1-528-022-00	Battery, size "D" (USA model)
CP2	1-464-044-00	Unit, DC-DC converter		
EH	8-825-506-00	Head, erase; EF135-36	1-534-049-31	Cord, connection; RK-74
F1,2	1-532-078-00	Fuse, 1AT (UK, AEP model) included in motor	1-534-840-11	Cord, power; DK-38 (AEP model)
FG			1-534-867-12	Cord, power; DK-35 (USA model)
F308	1-217-424-11	Resistor, fuse; 1.5 ½W (UK, AEP model)	1-534-879-11	Cord, power; DK-44 (UK model)
LPF	1-231-219-00	Unit, low-pass filter	3-533-950-00	Strap, shoulder
M	8-834-009-50	Motor (w/FG coil), D-009F	3-533-962-00	Bag, plastic
ME1	1-520-114-61	Meter, LEVEL	3-533-963-00	Case, accessory
ME2	1-520-114-71	Meter, LEVEL	3-533-964-00	Cushion (R)
PL1,2	1-518-152-00	Lamp	3-533-965-00	Cushion (L)
RPH	8-825-584-00	Head, record/playback; PF145-3602A	3-539-913-00	Carton (USA model)
SP	1-502-455-XX	Speaker, 8 Ω	3-539-914-00	Carton (UK, AEP model)
	1-101-528-11	Encapsulated Component, C-R	3-701-355-00	Label, tack (USA model)
	1-533-102-XX	Holder, fuse (UK, AEP model)	3-701-358-00	Label, tack (AEP model)
			3-701-630-00	Bag, plastic
			3-701-631-00	Bag, plastic
			3-701-680-00	Label, tack (UK model)
			3-780-704-21	Manual, instruction (USA model)
			3-780-704-41	Manual, instruction (UK, AEP model)
			3-793-010-20	Booklet, tape talk
			3-793-044-21	Carton, important (USA model)
			3-793-408-11	Leaflet
			3-793-681-11	Card, caution (AEP model)
			3-793-681-21	Card, caution (USA, UK model)
			3-793-711-11	Card, caution
			3-793-749-00	Card, DOLBY cassette (UK, AEP model)